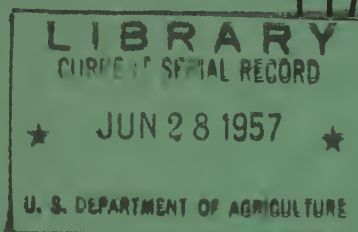


Historic, Archive Document

Do not assume content reflects current
scientific knowledge, policies, or practices.

1.9622
A3F76
Exp. 2
1-30-57

NORTH CAROLINA'S TIMBER SUPPLY, 1955



by

Robert W. Larson

HIGHLIGHTS

In many ways the timber supply outlook in North Carolina is better now than in 1938 when the first Forest Survey was completed. The State now has 1.2 million acres more forest land than in 1938. It has a third more hardwood growing stock and 20 percent more yellow-pine pole timber. In other ways, the outlook is not as good. North Carolina has 1.6 million acres less area in pine and oak-pine type. The volume of yellow-pine growing stock barely held its own, and pine sawtimber dropped 6 percent. The volume in cull trees increased 36 percent.

Between surveys, growth increased substantially, while the cut decreased slightly. Growth now exceeds the cut for all important species groups and in all size classes. But the less desirable timber is increasing so much faster than the kind of timber forest industries use that North Carolina faces a possible shortage of space for growing the pine and high-quality hardwoods industries will need in the future.

U. S. Department of Agriculture
Forest Service
Southeastern Forest Experiment Station
Joseph F. Pechanec, Director



FOREWORD

Through the McSweeney-McNary Act of 1928, Congress authorized the Secretary of Agriculture to conduct a comprehensive survey of the forest resources of the United States. The Forest Survey was organized by the Forest Service to carry out the provisions of the Act through the Regional Forest Experiment Stations. In the southeastern states the Forest Survey is an activity of the Division of Forest Economics of the Southeastern Forest Experiment Station, Asheville, North Carolina.

The first inventory of forest resources in North Carolina by the Forest Survey was made during the period 1937-38, and these findings have been published. The present report contains the findings of a resurvey of North Carolina's timber resources completed January 1956. It shows the area of land available for timber production, the volume and kind of timber on this land, how fast the timber is growing, and how fast it is being cut. It also shows the changes that have taken place since the first Survey.

In many instances, figures presented in this report do not agree with those shown for North Carolina in the recent Timber Resource Review. These differences arise from the fact that at the time the data were needed for the TRR report, the regular Forest Survey was completed only in the Southern Coastal Plain. Rough preliminary estimates for the remainder of the State were obtained by taking regular Forest Survey plots in a number of representative counties. The TRR survey was designed to provide reliable regional figures, but the North Carolina estimates had high sampling errors. They may also have contained errors due to sampling only part of the counties. Data presented in the present report are based on a much larger number of ground plots taken in all counties in the State and should be considered more reliable than those shown in the TRR report.

ACKNOWLEDGMENTS

The Southeastern Station gratefully acknowledges the cooperation of the North Carolina Department of Conservation and Development and Fred H. Claridge, State Forester, for providing personnel and equipment for a portion of the Survey. The Station also wishes to acknowledge the financial assistance provided by The Champion Paper and Fibre Company, Canton, North Carolina, which resulted in employment of an additional field crew and materially increased the rate of survey progress in the western portion of the State. Acknowledgment is also due to the Tennessee Valley Authority for their cooperation in conducting the field work in Buncombe, Cherokee, and Clay Counties.

The Division of Forest Economics is under the direction of James F. McCormack. Collection of the field data was supervised by L. C. Nix and Robert W. Larson. Aerial photo interpretation was done by R. C. Aldrich and William H. B. Haines. Special mensurational studies were made by Mackay B. Bryan. Office compilation was under the supervision of Agnes C. Nichols, assisted by Louise Shuford, Sammy Wenningham, Eunice Gamble, and Camilla Young.

CONTENTS

	<u>Page</u>
FOREST LAND AND TIMBER VOLUME - - - - -	1
More land to grow timber - - - - -	1
More timber on the land - - - - -	2
Less land growing pine - - - - -	2
Pine land better stocked - - - - -	4
Less softwood sawtimber - - - - -	4
Big increase in hardwoods - - - - -	5
TIMBER GROWTH AND CUT - - - - -	5
Timber growth up - - - - -	5
Timber use down - - - - -	6
Current growth now exceeds cut - - - - -	8
THE TIMBER SUPPLY OUTLOOK - - - - -	9
MANY OPPORTUNITIES TO INCREASE THE TIMBER SUPPLY - - - - -	12
ACCURACY OF FOREST SURVEY ESTIMATES - - - - -	16
SUMMARY TABLES	
A. Change in commercial forest area - - - - -	1
B. Change in volume of all trees 5.0 inches d.b.h. and larger - - - - -	2
C. Change in area of pine and oak-pine type and hardwood type - - - - -	3
D. Change in growing stock volume by size of timber - - -	4
E. Average annual change in timber volume by species group and class of material - - - - -	8
F. Average annual change in timber volume by size of timber	8
G. Disposition of timber cut - - - - -	14
DETAILED TABLES FOR THE STATE - - - - -	17--39
TABLES FOR COUNTIES - - - - -	40--55
STANDARD FOREST SURVEY TABLES - - - - -	56--64
DEFINITION OF TERMS - - - - -	65
HOW THE FOREST INVENTORY IS MADE - - - - -	71

DETAILED TABLES FOR THE STATE

Page

AREA

1. Gross area by broad use class - - - - -	17
2. Ownership of commercial forest land - - - - -	18
3. Commercial forest area by forest type and stand-size class - - - - -	19
4. Commercial forest area by forest type and site quality -	20

NET VOLUME OF SAWTIMBER

5. By species and stand-size class - - - - -	21
6. By species and diameter class - - - - -	22
7. By forest type and stand-size class - - - - -	23
8. By species group, log grade, and tree-size class - - - -	24

NET VOLUME OF ALL TIMBER

9. By species and stand-size class (in thousand cords) - - -	25
10. By species and diameter class (in thousand cords) - - -	26
11. By species and class of material (in thousand cords) - -	27
12. By forest type and stand-size class (in thousand cords) -	28
13. By species and diameter class (in million cubic feet) - -	29
14. By species and class of material (in million cubic feet)	30

AVERAGE VOLUME PER ACRE

15. Of sawtimber by forest type, species group, and stand- size class - - - - -	31
16. Of all trees by forest type, species group, and stand- size class - - - - -	32

STOCKING

17. Number of trees by species group, quality class, and tree size - - - - -	33
18. Area of seedling, sapling, and poorly stocked stands by plantability class - - - - -	34
19. Stocking on commercial forest area by forest type and tree-size class - - - - -	35

GROWTH

20. Net annual growth by species group and unit of measure, 1955 - - - - -	36
21. Net annual growth percentages for each species group and unit of measure, 1955 - - - - -	36
22. Average growth per acre by forest type and stand-size class - - - - -	37

TIMBER CUT

23. Average annual volume of timber cut by tree-size class and species group, 1955 - - - - -	38
---	----

NET CHANGE

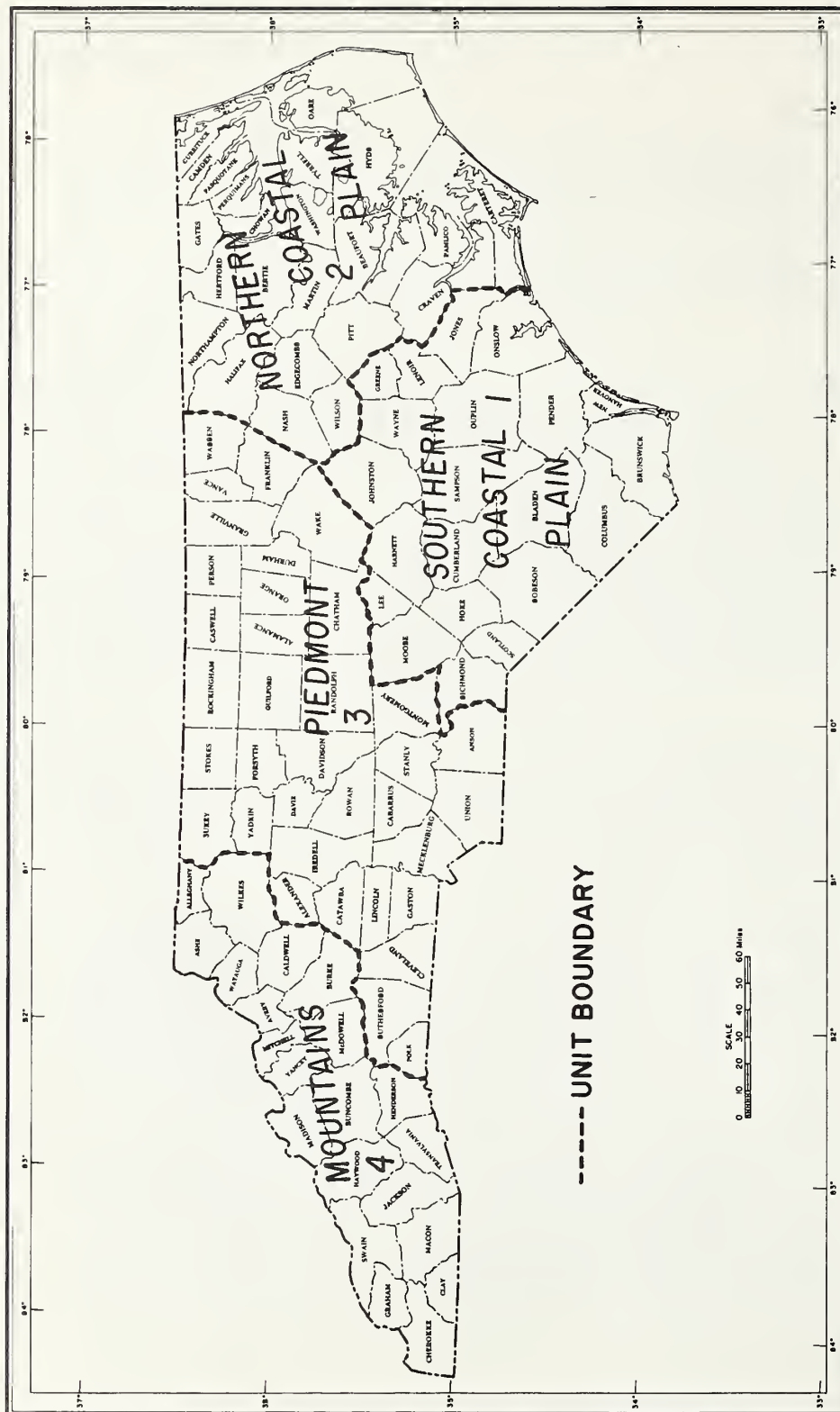
24. Net annual change in volume by species group, 1955 - - -	39
--	----

TABLES FOR COUNTIES

25. County area by broad use class - - - - -	40
26. Ownership of commercial forest land by county - - - - -	42
27. Net volume of sawtimber by county and species group - - -	44
28. Net volume of sawtimber by county, broad species group, and diameter-class group - - - - -	46
29. Net volume of all timber by county, pulping species group, and tree-diameter group - - - - -	48
30. Average annual volume of sawtimber cut by county and species group - - - - -	52
31. Average annual volume of growing stock cut by county and species group - - - - -	54

STANDARD FOREST SURVEY TABLES

I. Land area by major classes of land, North Carolina, 1955	56
II. Commercial forest land area by ownership and stand-size class, North Carolina, 1955 - - - - -	57
III. Area of commercial forest land by major forest types, North Carolina, 1955 - - - - -	58
IV. Net volume of live sawtimber and growing stock on com- mercial forest land by stand-size class, North Carolina, 1955 - - - - -	59
V. Net volume of live sawtimber and growing stock on commer- cial forest land by ownership class, North Carolina, 1955	59
VI. Net volume of live sawtimber and growing stock on commer- cial forest land by species, North Carolina, 1955 - - - -	60
VII. Net volume of live sawtimber on commercial forest land by diameter-class group and species, North Carolina, 1955 -	61
VIII. Net volume of all timber on commercial forest land by class of material and species group, North Carolina, 1955	62
IX. Net annual growth, annual mortality, and annual cut of live sawtimber and growing stock on commercial forest land by species group, North Carolina, 1955 - - - - -	63
X. Output of timber products and annual cut of live saw- timber and growing stock, North Carolina, 1955 - - - - -	64



Forest Survey units in North Carolina.

NORTH CAROLINA'S TIMBER SUPPLY, 1955

In the 17 years between forest surveys, many factors, such as changes in land use, timber cutting, growth, forestry practices, natural ecological trends, and undoubtedly others, have contributed to a number of important changes in North Carolina's timber resources. Some of these changes have improved the State's ability to supply forest industries with the amount and kind of timber they need; others have not.

FOREST LAND AND TIMBER VOLUME

More land to grow timber.--One desirable change has been the increase in forest land. Between surveys enough cropland was abandoned and allowed to revert to forest in excess of land cleared to increase the area of commercial forest land from 18.1 million to 19.3 million acres (fig. 1), an increase of 1.2 million acres, or nearly 7 percent (table A). Forest land available for timber production now makes up 62 percent of the land area in the State.

Table A.--Change in commercial forest area

Survey unit	1938	1955	Change	
	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Percent</u>
Southern Coastal Plain	5,544.3	5,388.9	-155.4	-2.8
Northern Coastal Plain	4,045.5	4,140.4	+94.9	+2.3
Piedmont	4,968.1	5,821.1	+853.0	+17.2
Mountains	3,543.8	3,991.0	+447.2	+12.6
State	18,101.7	19,341.4	+1,239.7	+6.8

Figure 1.--Seeding in of abandoned farmland with trees increased the area of forest land by 1.2 million acres in the 17 years between forest surveys.



The increase in forest area took place in both the Piedmont and Mountain Units, but mainly in the Piedmont, where the increase amounted to 853,000 acres. Forest area in the Coastal Plain remained about the same; the slight increase in the Northern Coastal Plain just about offset the small decrease in the Southern Coastal Plain.

More timber on the land.--Between surveys, the volume of growing stock in the State increased by 17 percent, or about 32 million cords (table B). Growing stock is volume in trees 5.0 inches and larger that are either now suitable for saw logs or are expected to be saw-log quality when they become large enough. Even with the big increase in forest area, the volume of growing stock per acre increased from 10.5 to 11.5 cords. The number of 2- and 4-inch trees also increased by about 15 percent.

Table B.--Change in volume of all trees 5.0 inches
d.b.h. and larger

Species group and class of material	1938	1955	Change	
	<u>Thousand cords</u>	<u>Thousand cords</u>	<u>Thousand cords</u>	<u>Percent</u>
Growing stock:	190,311	222,232	+31,921	+16.8
Yellow pines	96,520	97,634	+1,114	+1.2
Other softwoods	7,998	8,234	+236	+3.0
Soft hardwoods	43,047	56,769	+13,722	+31.9
Hard hardwoods	42,746	59,595	+16,849	+39.4
Culls ^{1/}	30,587	41,491	+10,904	+35.6
All live trees	220,898	263,723	+42,825	+19.4

^{1/} Exclusive of hardwood limbs.

Largely because of these increases, North Carolina's forest lands are now fairly well stocked, especially in comparison with the Nation and neighboring states. Based on a count of both growing-stock and potential growing-stock trees down to seedling size, 82 percent of the forest land is medium to well stocked. This compares with 74 percent for the Nation and 76 percent for the South. In North Carolina, only 3 percent of the land is less than 10 percent stocked, compared to 9 percent for the Nation and the South.

Less land growing pine.--In 1938, 11.6 million acres supported pine and oak-pine types (table C). This was land on which at least 25 percent of the dominant and codominant trees were pine.

Most of the 1.2-million-acre increase in forest land between surveys was abandoned farmland which seeded in to pine and increased the area of pine type. However, at the same time, cutting of pine in preference to hardwoods along with natural ecological trends reduced the pine component enough in many stands to convert 2.8 million acres of pine and oak-pine type to hardwood type (fig. 2). In 1955, the State ended up with 10.0 million acres of pine and oak-pine type, 1.6 million acres less than in 1938.



Figure 2.--The practice of cutting out pine and leaving hardwoods contributed heavily to the 2.8-million-acre increase in hardwood type.

Table C.--Change in area of pine and oak-pine type and hardwood type^{1/}

Survey unit	Pine and oak-pine type			Hardwood type		
	1938	1955	Change	1938	1955	Change
	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Percent</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Percent</u>
Southern Coastal Plain	4,197.7	3,454.6	-17.7	1,346.6	1,934.3	+43.6
Northern Coastal Plain	2,803.4	2,391.1	-14.7	1,242.1	1,749.3	+40.8
Piedmont	3,558.4	3,151.4	-11.4	1,409.7	2,669.7	+89.4
Mountains	1,079.6	1,024.8	-5.1	2,464.2	2,966.2	+20.4
State	11,639.1	10,021.9	-13.9	6,462.6	9,319.5	+44.2

^{1/} Type acreages shown in this table are based on number of dominant and codominant trees and do not agree with areas shown in table 3, which are based on cubic-foot volume.

Pine land better stocked.--The stands that remained pine type now actually contain more pine volume than they did 17 years ago. While the area of pine and oak-pine type decreased, the volume of pine growing stock remained about the same. The average volume per acre is now 9.7 cords, compared to 8.3 cords in 1938. Also, the total number of 2- and 4-inch pines increased by 13 percent.

This increase in pine volume in the face of a decrease in pine type area suggests that most of the conversion to hardwoods took place in stands which had a comparatively small amount of pine in them to start with. A large share of these converted stands are probably on land least suited to growing pine. They include the high-quality sites where hardwoods are especially aggressive, and the relatively unproductive sandhill sites where longleaf pine is slow to reproduce, especially in competition with the dense cover of scrub oak which is frequently present. Thus, these shifts in types have not seriously affected the State's pine-growing capacity.

Pine growing-stock volume remained about the same in all survey units. The 3.4-percent increase in the Northern Coastal Plain, the largest difference, could easily arise from sampling variability in the two surveys.

Less softwood sawtimber.--While North Carolina has about the same volume of softwood growing stock now as in 1938, it has 6 percent less sawtimber (table D). Large sawtimber suffered practically all the decrease; small sawtimber volume remained about the same. Softwood sawtimber now makes up 66 percent of the growing-stock volume, compared to 71 percent 17 years ago. While the remaining pine and oak-pine stands contain more pine volume now than in 1938, the timber on the average is smaller.

Table D.--Change in growing-stock volume by size of timber

Size of timber	Softwoods			Hardwoods		
	1938	1955	Change	1938	1955	Change
	<u>Thousand cords</u>	<u>Thousand cords</u>	<u>Percent</u>	<u>Thousand cords</u>	<u>Thousand cords</u>	<u>Percent</u>
Poletimber	30,631	36,505	+19.2	32,434	50,332	+55.2
Sawtimber:	73,887	69,363	-6.1	53,359	66,032	+23.8
Small	51,542	50,192	-2.6	23,358	32,621	+39.7
Large	22,345	19,171	-14.2	30,001	33,411	+11.4
All sizes	104,518	105,868	+1.3	85,793	116,364	+35.6

Big increase in hardwoods.--The 2.8-million-acre increase in hardwood type area was accompanied by a 36-percent increase in hardwood growing stock, and a 24-percent increase in hardwood sawtimber.

The increase in hardwood volume was not in proportion to the increase in type area, and as a result present hardwood stands do not contain as large an average volume per acre as they did in 1938. A large share of the heavily timbered bottomland hardwoods remaining at the time of the first survey have since been cut out. Also, many of the stands included in the 2.8 million acres converted from pine to hardwood type were heavily cut and now contain mainly small, low-quality hardwoods, many of them culls. The average volume per acre dropped from 12.2 to 11.5 cords.

One especially undesirable trend is the increase in amount of available growing space taken over by low-quality hardwoods. During the period between surveys the volume in cull trees,^{1/} mostly hardwoods, increased by 36 percent.

TIMBER GROWTH AND CUT

Timber growth up.--A greater area of forest land along with better stocking boosted timber growth by 3.9 million cords, a gain of 43 percent. Total timber growth in 1938 was 9.2 million cords, compared to 13.1 in 1955 (fig. 3). Softwood growth increased 1.1 million cords, and hardwoods, 2.8 million cords. Individual trees are probably not growing any faster; the increase in growth comes mainly from the larger number of small trees which annually attain volume size (ingrowth).

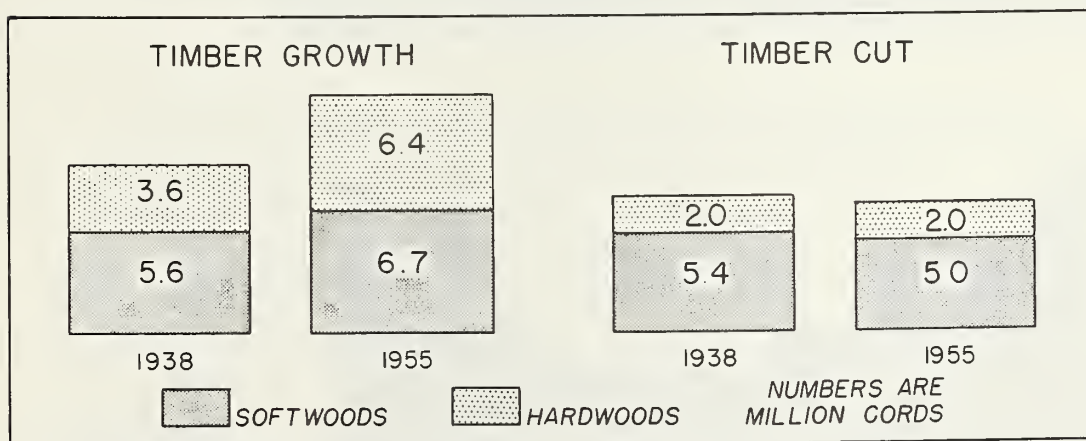


Figure 3.--Timber growth and cut, 1938 and 1955.

^{1/} Trees which are now or prospectively too poor in quality to make at least one 12-foot saw log with at least half the volume suitable for lumber.

Timber use down.--In 1938 the total cut from growing stock was 7.4 million cords; in 1955 it was 7.0 million cords, a drop of about 5 percent (fig. 3). Only the use of softwoods decreased; hardwood use remained about the same.

While the total cut has not changed much, there have been some important shifts in the use of the timber harvested (fig. 4). The proportion of timber cut for pulpwood has jumped from 4 percent in 1938 to over 19 percent in 1955. Production in 1955 reached an alltime high of 1.6 million cords (fig. 5). The State now has 5 pulp mills with a daily pulping capacity of about 2,700 tons.

Figure 4. --Timber use by product, as a percent of total cut, 1938 and 1955.



Figure 5. --Timber cut for pulpwood is now 5 times greater than at the time of the first survey and makes up nearly 20 percent of the total cut.

While use of pulpwood has skyrocketed, the use of growing stock for fuel has dropped. As timber has become more valuable, the use of other sources for fuelwood such as sawmill and logging residue and cull and dead trees increased. In 1955, only 13 percent of the timber cut from growing stock was used for fuel, compared to 36 percent in 1938 (fig. 6).

Figure 6.--The amount of fuelwood cut from growing stock is now only a third of what it was in 1938.



Timber cut for veneer jumped 50 percent, but even with this increase, timber cut for veneer bolts still accounts for only 6 percent of the total cut.

The volume of timber cut for saw logs has remained about the same, but the proportion has increased from 52 percent in 1938 to 57 percent in 1955.

The drop in timber cut for cooperage and hewn ties just about offset the increase in the cut for poles and piling. As a result, the volume cut for all other products has not changed; they still make up only 5 percent of the total cut.

In spite of these shifts in the amount of timber cut for various products, North Carolina's forest industries still depend upon sawtimber and softwoods for about three-fourths of their timber needs.

Current growth now exceeds cut.--Because of the substantial increase in growth, along with the slight drop in the use of timber, North Carolina's timber resources are now better able to meet current timber needs than they were 17 years ago. Growth now exceeds the cut in all major species groups (table E). Also, in contrast to the drop in volume between surveys, both small and large softwood sawtimber are now increasing (table F), and all other classes of timber, which increased between surveys, are now increasing at an even faster rate.

Table E.--Average annual change in timber volume by species group and class of material

(In thousand cords)

Species group and class of material	Between surveys ^{1/}	Current
Growing stock:	+1,878	+6,123
Yellow pine	+66	+1,703
Other softwoods	+14	+91
Soft hardwoods	+807	+2,437
Hard hardwoods	+991	+1,892
Cull timber	+641	+1,488
All live timber	+2,519	+7,611

^{1/} Total change between surveys divided by 17 years.

Table F.--Average annual change in timber volume by size of timber

(In thousand cords)

Size of timber	Softwoods		Hardwoods	
	Between surveys	Current	Between surveys	Current
Poletimber	+346	+1,081	+1,053	+2,764
Small sawtimber	-79	+303	+545	+704
Large sawtimber	-187	+410	+200	+861
All sizes	+80	+1,794	+1,798	+4,329

These State totals, however, hide significant details by survey units. Yellow-pine sawtimber in the Piedmont in 1955 was still being overcut. In fact, it was decreasing at an even faster rate than the average between surveys. In this unit, yellow-pine sawtimber cut exceeded the growth by 65 million board-feet per year, or about 1 percent of the inventory volume. Also, in the Mountain Unit, softwood sawtimber cut exceeded the growth by 16 percent in 1955.

THE TIMBER SUPPLY OUTLOOK

While current growth is sufficient to supply present needs, it may or may not be adequate to provide for future needs. What will be the future demands on North Carolina's timber resources, and what are the prospects of being able to satisfy these demands? In a recent study of the timber supply outlook for the Nation, the U. S. Forest Service concluded that, because of increases in population along with increases in standard of living, America's demand for wood may be from 17 to 29 percent greater by 1975, and 47 to 80 percent greater by the year 2000. The upper estimate is based upon the assumption that wood will maintain its place as a source of structural material, while the lower estimate assumes a reduction in the relative use of wood. In either case, future needs will be much greater than they are today.

North Carolina is one of the Nation's leading timber-producing states. In relation to its forest area, the State now provides more than its share of both growth and cut. With 4 percent of the Nation's commercial forest area, the State supplies 5 percent of the annual cut and produces 6 percent of the annual growth. The State's timber resources will play an even more important role in helping supply the future demand for wood.

Maintaining the State's present share of the national cut could be a minimum objective, because as the virgin timber stands of western softwoods are cut out, the eastern states, especially the southern states with their high growth capacity, will have to assume an increasing share of the cut.

Growing increased quantities of timber without regard to kind and quality will not necessarily meet the timber needs of the Nation or those of North Carolina's forest industries. Timber must be grown to produce specific products.

The lack of balance between inventory and use of timber in North Carolina raises some doubt as to whether the supply will be adequate to provide the kind of timber needed in sufficient quantities to meet future demands (fig. 7). The total volume of growing stock adds up to 222 million cords. Only about 60 percent of this volume is in trees large enough and of good enough quality to produce saw logs, but currently 80 percent of the timber cut comes from sawtimber (fig. 8). Softwood growing stock makes up 40 percent of the total volume of timber including cull timber, but supplies two-thirds of the total cut (fig. 9).



Figure 7. --The present strong demand for large yellow-pine saw logs is expected to continue.

The trend is toward a poorer balance between supply and demand. In 1938, the volume of softwood growing stock amounted to nearly half the total volume of timber; now the proportion is only 40 percent. And, if current trends continue, by 1965 the softwood proportion will have dropped still farther to 36 percent.

At the time of the first survey, sawtimber made up two-thirds of the growing-stock volume. During the past 17 years, this proportion has dropped to 61 percent, and if current trends continue can be expected to drop to 55 percent by 1965.

With so much of the inventory consisting of timber that forest industries cannot use, North Carolina faces the possibility that eventually the less desirable timber will occupy so much of the available forest land that there will not be enough space left to grow the softwoods and high-quality hardwoods needed.



Figure 8. --Trend in proportion of growing stock volume in relation to current annual cut, by size of timber.

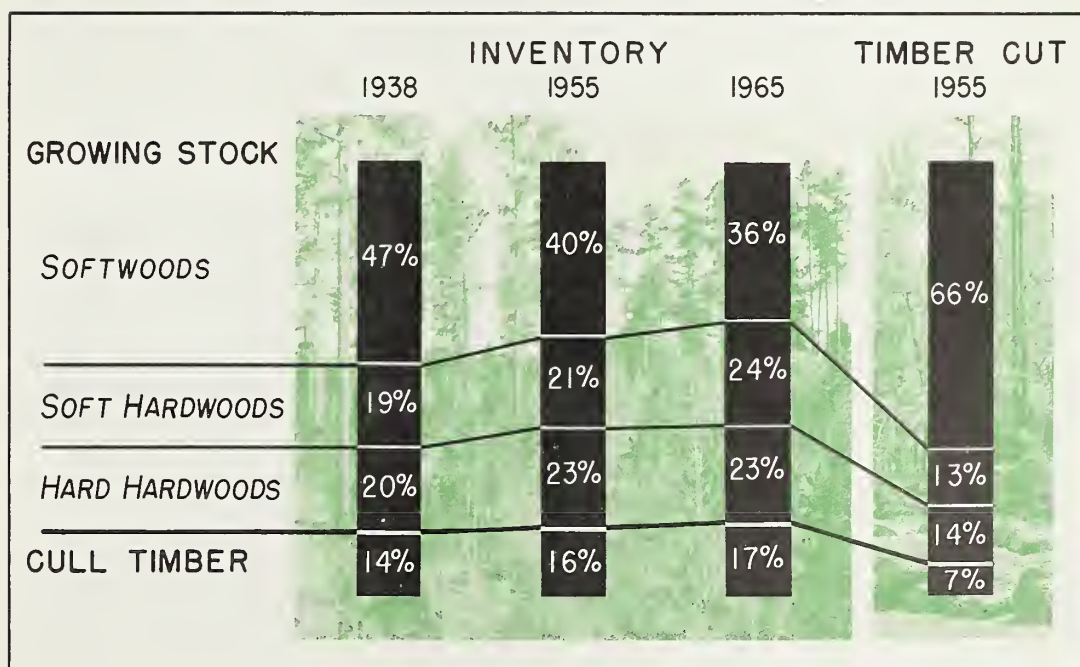


Figure 9. --Trend in proportion of timber inventory volume in relation to current annual cut, by species group and class of material.

MANY OPPORTUNITIES TO INCREASE THE TIMBER SUPPLY

North Carolina has enough forest land with the productive capacity to easily meet prospective demands. The big problem is to grow more of the right kind of trees.

Plant nonstocked areas.--One way of making sure the land is stocked with the right kind of timber is to plant it with desirable trees as quickly as possible--plant it before undesirable growth has a chance to take over (fig. 10). Out of the 3.6 million acres of forest land under 40 percent stocked, 532,000 acres do not have enough seed trees to insure prompt restocking. On 204,000 acres of this area, brush and cull trees are so dense that their removal would be necessary before the area could be planted. Planting on these areas would be very costly, and on low-quality sites, such as dry, sandy areas and swamps, probably unprofitable. This leaves 328,000 acres of forest land on which conditions are favorable for planting. This area, along with 642,000 acres in nonforest land, mainly abandoned cropland, makes a total of 970,000 acres in North Carolina which is considered plantable. During the 1956 planting season, 32,000 acres were planted.



Figure 10.--North Carolina has over 600,000 acres of abandoned farmland. Unless planted, a large share of this will remain poorly stocked with poor-quality trees for many years.

Make room for desirable trees.--In addition to the job of getting the plantable land stocked, there is the even bigger job of making the space already taken over by undesirable trees and brush available to desirable trees. It is estimated that cull trees of all sizes occupy about a fifth of the available growing space in North Carolina.

The ideal way of getting rid of these undesirable trees is to find a use for them. However, the prospects of finding a use for any large part of available volume in the near future are not especially promising. Just to cut the current annual increase in sound cull timber would mean finding a use for 1.5 million cords a year. This would be in addition to the 4.3-million-cord annual surplus growth of hardwood growing stock, a large part of which is low-quality oak of little or no use at present. In view of the tremendous volume of low-grade material that would have to be used just to prevent the volume from increasing, forest landowners in North Carolina will more and more frequently be faced with making a difficult decision. They must decide whether to allow this low-grade material to take over the remaining growing space on their land or to take steps to control it.

Cut down on growth losses.--Another way of making more timber available is to cut down on losses from destructive agents, such as fire (fig. 11), disease, and insects. The annual mortality in North Carolina from all agents is 312 million board-feet, or 1.3 million cords. More than half this loss is softwoods.



Figure 11.--Killing merchantable-size trees is only part of the damage caused by fire. An even greater loss is the destruction of countless small trees. Several hundred thousand acres of forest land burn over annually in North Carolina.

The timber of merchantable size actually killed in any one year is a relatively small part of the total loss. Other losses, or growth losses such as reduction in diameter growth, reduction of stocking, and introduction of rot, are 5 times greater than mortality. It is estimated that these growth losses may amount to as much as 6 million cords annually in North Carolina.

Make better use of timber cut.--Currently about a fourth of the timber cut either stays in the woods as logging residue or ends up in the refuse burner at the plant. More complete use of timber cut can help stretch the present supplies. It is estimated that in North Carolina 766,000 cords, or 11 percent of the total timber cut, is left in the woods following logging, most of it following saw-log and veneer-log operations (table G). While pulpwood offers the best opportunity of using this material, the prospects of utilizing any great quantity of this material even for pulpwood are not especially promising. Pulpwood operators report that most of this wood is so rough and scattered that it seldom pays to pick it up unless some of the residual standing timber is also cut. Also, pulp-mill people say it is not especially desirable for wood pulp since it contains many knots which do not chip properly, and these end up in the screenings.

Table G.--Disposition of timber cut

Disposition	Volume	
	<u>Thousand cords</u>	<u>Percent</u>
Left in woods	766	11.0
Transported to mill:	6,198	89.0
Used in manufacture	4,648	66.7
Plant residue:	1,550	22.3
Used	713	10.2
Unused:	837	12.1
Fine	485	7.0
Coarse	352	5.1
Total timber cut	6,964	100.0

The prospect of using the residue at the plant is much better--the volume is larger and it is better concentrated. It is estimated that out of the 6.2 million cords of timber brought to the primary processing plants annually, 25 percent, or 1.6 million cords, becomes mill residue (fig. 12). Nearly half this residue is used at the mill, most of it for fuel to run the mill. Much of this probably would not be burned if a higher use could be found. The equivalent of about 500,000 cords is fine material such as sawdust and shavings. The remaining 350,000 cords is coarse material suitable for pulpwood, mainly slabs and edgings, and veneer cores.



Figure 12. --Out of the 350,000 cords of unused residue suitable for pulpwood available annually, only about 10,000 cords were used in 1955.

Some progress is being made in making use of this material, but in 1955 it was estimated that the equivalent of only about 10,000 cords of pulpwood came from plant residue. Gathering this material from many widely scattered small sawmills presents the biggest obstacle to its more complete use.

ACCURACY OF FOREST SURVEY ESTIMATES

Forest Survey estimates are subject to two sources of errors. First, there are the errors that arise from human mistakes in judgment, measurement, recording, or arithmetic in the collection and compilation of the data. The amount of error from this source is not known, but every effort was made to reduce or eliminate such errors through training, supervision, field check cruises, and complete editing and machine verification in compiling the data. The second source of error arises from sampling variation. These sampling errors are measurable and were controlled by varying size and design of the sample.

The estimate of total forest area, based upon the classification of 283,240 air photo points, has a sampling error of ± 0.4 percent for the State and ± 1.8 percent per million acres of forest area. This means that the probabilities are two out of three that the actual forest area is within the sampling error of the estimate.

The estimate of cubic volume is based upon measurements taken on 7,361 ground plots and has a sampling error of ± 1.2 percent for the State, or ± 4.8 percent per billion cubic feet. The error of the volume in standard cords was not computed, but it should be approximately the same as for cubic volume. The sampling error of the total board-foot volume estimate was ± 1.4 percent.

Estimates of timber growth are based on measurements of radial growth on 12,500 sample trees, and on mortality data taken on sample plots. No attempt was made to compute the sampling error of growth estimates.

Estimates of timber cut are based on the number and size of stumps tallied on cutover plots. Stumps of all trees estimated to have been cut during the 3-year period preceding the date of inventory were recorded, and the measurements were converted into tree volume. The average volume of timber cut for the 3-year period was taken as the annual estimate. The standard sampling error for the total volume of growing stock cut was ± 4.9 percent, or ± 3.6 percent per billion cubic feet.

Tables showing forest area, timber volume, and timber cut by county are included to permit grouping of the data in any desired area combination. County estimates of forest area range from a low of ± 1.5 percent to a high of ± 9.2 percent, estimates of growing stock volume from ± 6.2 to ± 16.9 percent, and of board-foot volume, from ± 7.1 to ± 20.8 percent. Because of these high sampling errors, comparison or use of individual county statistics should be avoided. It is recommended that area or volume data for a minimum of five counties be combined, and that at least 10 counties be used when working with data on timber cut.

Table 1.--Gross area^{1/} by broad use class

Class of use	Area	
	<u>Thousand acres</u>	<u>Percent</u>
Forest land:		
Commercial	19,341.4	57.3
Noncommercial:		
Productive-reserved	340.5	1.0
Unproductive	393.8	1.2
Total forest	20,075.7	59.5
Nonforest land:		
Agriculture	9,758.8	28.9
Marsh	282.2	0.9
Urban and other ^{2/}	1,151.2	3.4
Total nonforest	11,192.2	33.2
Total land area	31,267.9	92.7
Total water area ^{3/}	2,467.8	7.3
All classes	33,735.7	100.0

^{1/} From U. S. Bureau of the Census, 1950.

^{2/} Includes urban, suburban, residential, and rural industrial areas, rights-of-way, cemeteries, schools, etc.

^{3/} Includes 2,313,600 acres of Census water reported in 1950 plus 17,400 acres of Census water created since 1950. Also includes 136,800 acres of water according to Survey standards but defined by the Bureau of the Census as land area.

Table 2.--Ownership of commercial forest land

Class of ownership	Commercial forest land	
	<u>Thousand acres</u>	<u>Percent</u>
Public land:		
National forest	1,046.6	5.4
Indian	52.1	0.3
Other Federal	231.5	1.2
Total Federal	1,330.2	6.9
State	253.0	1.3
County and municipal	35.6	0.2
Total public	1,618.8	8.4
Private land:		
Farm	13,268.7	68.6
Other	4,453.9	23.0
Total private	17,722.6	91.6
All classes	19,341.4	100.0

Table 3.--Commercial forest area by forest type and stand-size class

(In thousand acres)

Forest type ^{1/}	Large sawtimber stands	Small sawtimber stands	Pole- timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwood types:						
Longleaf pine	8.2	97.5	343.4	184.1	39.1	672.3
Loblolly pine	552.1	1,355.4	1,079.7	509.4	32.9	3,529.5
Shortleaf pine	78.7	729.7	732.6	189.8	18.3	1,749.1
Pond pine	75.1	340.2	379.7	569.9	91.0	1,455.9
Virginia pine	3.7	188.4	397.6	210.7	35.3	835.7
White pine	65.4	64.4	44.9	26.8	4.3	205.8
Spruce-fir	5.1	--	5.6	--	3.5	14.2
Total	788.3	2,775.6	2,983.5	1,690.7	224.4	8,462.5
Hardwood types:						
Oak-pine	234.9	436.3	776.6	547.3	32.0	2,027.1
Oak-hickory:						
Upland hwd's.	1,118.8	1,028.1	2,129.6	782.7	149.1	5,208.3
Scrub oak	--	--	--	70.9	133.3	204.2
Oak-gum-cypress	944.1	699.1	723.2	721.6	110.7	3,198.7
Maple-beech-birch	85.7	56.9	72.4	25.6	--	240.6
Total	2,383.5	2,220.4	3,701.8	2,148.1	425.1	10,878.9
All types	3,171.8	4,996.0	6,685.3	3,838.8	649.5	19,341.4
Percent	16.4	25.8	34.6	19.8	3.4	100.0

^{1/} See description of forest types and stand-size classes under Definition of Terms.

Table 4.--Commercial forest area by forest type and site quality^{1/}

(In thousand acres)

Forest type	Poor site	Fair site	Good site	All sites
Softwood types:				
Longleaf pine	281.5	297.3	93.5	672.3
Loblolly pine	675.1	1,392.0	1,462.4	3,529.5
Shortleaf pine	496.9	598.3	653.9	1,749.1
Pond pine	873.2	398.5	184.2	1,455.9
Virginia pine	178.0	367.9	289.8	835.7
White pine	12.3	39.8	153.7	205.8
Spruce-fir	--	12.2	2.0	14.2
Total	2,517.0	3,106.0	2,839.5	8,462.5
Hardwood types:				
Oak-pine	389.3	574.2	1,063.6	2,027.1
Oak-hickory:				
Upland hdwds.	668.0	3,150.4	1,389.9	5,208.3
Scrub oak	189.5	14.7	--	204.2
Oak-gum-cypress	244.7	1,259.7	1,694.3	3,198.7
Maple-beech-birch	31.6	67.9	141.1	240.6
Total	1,523.1	5,066.9	4,288.9	10,878.9
All types	4,040.1	8,172.9	7,128.4	19,341.4
Percent	20.9	42.3	36.8	100.0

^{1/} See description of forest types and site quality under Definition of Terms.

Table 5.--Net volume^{1/} of sawtimber by species and stand-size class

(In million board-feet)

Species ^{2/}	Large sawtimber stands	Small sawtimber stands	Pole- timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwoods:						
Longleaf pine	115.5	373.4	227.5	82.5	20.6	819.5
Loblolly pine	4,941.4	7,340.5	1,255.7	542.0	32.4	14,112.0
Shortleaf pine	602.8	3,463.8	540.8	86.6	5.1	4,699.1
Pond pine	397.4	1,626.8	380.5	281.3	42.7	2,728.7
Virginia pine	85.1	767.6	169.9	3.5	0.7	1,026.8
Total	6,142.2	13,572.1	2,574.4	995.9	101.5	23,386.1
White pine	414.7	271.6	55.9	22.0	4.7	768.9
Hemlock	488.9	25.6	15.9	40.0	--	570.4
Spruce & balsam fir	117.4	2.3	1.8	5.4	6.0	132.9
Cypress	801.5	375.7	116.0	31.6	3.5	1,328.3
Redcedar	6.9	24.9	25.5	--	0.3	57.6
Whitecedar	58.2	82.3	6.5	--	--	147.0
Total sftwds.	8,029.8	14,354.5	2,796.0	1,094.9	116.0	26,391.2
Hardwoods:						
Blackgum	2,466.7	1,573.4	325.9	134.3	20.1	4,520.4
Sweetgum	1,767.9	1,070.6	302.8	69.5	0.7	3,211.5
Yellow-poplar	1,389.8	857.8	320.6	52.1	3.7	2,624.0
Cottonwood	9.3	6.9	2.8	0.9	--	19.9
Soft maple	553.8	316.1	99.8	32.0	14.1	1,015.8
Basswood	156.3	29.2	37.8	--	--	223.3
Other soft hwdws.	459.5	118.5	69.8	6.4	6.2	660.4
Total	6,803.3	3,972.5	1,159.5	295.2	44.8	12,275.3
White & swamp chestnut oaks	1,259.5	945.7	350.7	60.2	6.5	2,622.6
Other white oaks	847.2	465.8	286.3	59.4	15.0	1,673.7
No. red & swamp red oaks	873.5	284.8	178.3	34.2	5.3	1,376.1
Other red oaks	1,506.1	1,072.3	462.1	86.8	6.4	3,133.7
Hickory	886.3	492.8	314.2	48.0	10.5	1,751.8
Ash	398.7	109.7	52.1	0.8	--	561.3
Beech	194.8	72.6	39.2	5.8	--	312.4
Sugar maple	30.4	16.3	17.0	--	--	63.7
Yellow birch	38.9	3.0	2.5	4.0	--	48.4
Black walnut	17.4	23.1	11.0	3.1	4.0	58.6
Other hard hwdws.	367.6	157.1	106.5	25.8	4.7	661.7
Total	6,420.4	3,643.2	1,819.9	328.1	52.4	12,264.0
Total hwdws.	13,223.7	7,615.7	2,979.4	623.3	97.2	24,539.3
All species	21,253.5	21,970.2	5,775.4	1,718.2	213.2	50,930.5
Percent	41.7	43.1	11.4	3.4	0.4	100.0

^{1/} Log scale, International 1/4-inch rule.^{2/} See Definition of Terms for species combined with others.

Table 6.--Net volume^{1/} of sawtimber by species and diameter class

Species	10-12 inches ^{2/}	14-18 inches	20-24 inches	26+ inches	All diameters	
	Million bd.-ft.	Million bd.-ft.	Million bd.-ft.	Million bd.-ft.	Million bd.-ft.	Percent
Softwoods:						
Longleaf pine	458.5	287.4	66.6	7.0	819.5	1.6
Loblolly pine	5,668.6	6,578.9	1,635.0	229.5	14,112.0	27.7
Shortleaf pine	3,272.1	1,259.1	148.9	19.0	4,699.1	9.2
Pond pine	1,540.2	1,110.7	77.8	--	2,728.7	5.4
Virginia pine	716.1	296.5	14.2	--	1,026.8	2.0
Total	11,655.5	9,532.6	1,942.5	255.5	23,386.1	45.9
White pine	250.2	270.3	172.9	75.5	768.9	1.5
Hemlock	44.7	113.2	143.0	269.5	570.4	1.1
Spruce & balsam fir	25.8	61.1	24.8	21.2	132.9	0.3
Cypress	322.0	672.2	211.6	122.5	1,328.3	2.6
Redcedar	39.8	17.8	--	--	57.6	0.1
Whitecedar	79.8	51.4	15.8	--	147.0	0.3
Total sftwds.	12,417.8	10,718.6	2,510.6	744.2	26,391.2	51.8
Hardwoods:						
Blackgum	976.5	2,677.2	672.7	194.0	4,520.4	8.9
Sweetgum	674.8	1,842.5	545.1	149.1	3,211.5	6.3
Yellow-poplar	607.7	1,416.7	486.4	113.2	2,624.0	5.2
Cottonwood	3.5	9.9	6.5	--	19.9	(3/)
Soft maple	234.6	588.0	163.9	29.3	1,015.8	2.0
Basswood	40.7	130.6	46.1	5.9	223.3	0.4
Other soft hwdws.	111.7	335.9	176.5	36.3	660.4	1.3
Total	2,649.5	7,000.8	2,097.2	527.8	12,275.3	24.1
White & swamp chestnut oaks	595.6	1,307.4	487.5	232.1	2,622.6	5.1
Other white oaks	380.6	759.9	351.5	181.7	1,673.7	3.3
No. red & swamp red oaks	203.3	599.6	346.3	226.9	1,376.1	2.7
Other red oaks	653.5	1,569.5	609.8	300.9	3,133.7	6.2
Hickory	418.6	886.6	354.2	92.4	1,751.8	3.5
Ash	137.8	306.2	79.7	37.6	561.3	1.1
Beech	59.1	142.4	77.6	33.3	312.4	0.6
Sugar maple	15.7	40.6	7.4	--	63.7	0.1
Yellow birch	7.7	20.7	10.7	9.3	48.4	0.1
Black walnut	10.8	44.3	3.5	--	58.6	0.1
Other hard hwdws.	177.3	314.8	144.2	25.4	661.7	1.3
Total	2,660.0	5,992.0	2,472.4	1,139.6	12,264.0	24.1
Total hwdws.	5,309.5	12,992.8	4,569.6	1,667.4	24,539.3	48.2
All species	17,727.3	23,711.4	7,080.2	2,411.6	50,930.5	100.0
Percent	34.8	46.6	13.9	4.7	100.0	--

^{1/} Log scale, International 1/4-inch rule.^{2/} Ten-inch hardwoods are not included.^{3/} Less than 0.05 percent.

Table 7.--Net volume^{1/} of sawtimber by forest type and stand-size class

(In million board-feet)

Forest type	Large sawtimber stands	Small sawtimber stands	Pole- timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwood types:						
Longleaf pine	60.6	318.5	226.8	35.3	10.2	651.4
Loblolly pine	4,939.1	7,285.9	1,098.5	225.3	13.8	13,562.6
Shortleaf pine	512.5	3,475.2	411.3	41.0	1.8	4,441.8
Pond pine	380.0	1,590.4	355.9	228.8	43.1	2,598.2
Virginia pine	22.1	827.5	164.3	32.5	0.7	1,047.1
White pine	623.6	214.8	36.1	0.7	6.1	881.3
Spruce-fir	117.4	--	1.9	--	6.0	125.3
Total	6,655.3	13,712.3	2,294.8	563.6	81.7	23,307.7
Hardwood types:						
Oak-pine	1,518.3	1,628.3	698.2	297.5	3.9	4,146.2
Oak-hickory:						
Upland hdwds.	5,620.4	3,102.4	1,805.0	353.7	51.1	10,932.6
Scrub oak	--	--	--	33.9	24.8	58.7
Oak-gum-cypress	6,933.6	3,326.9	916.5	459.6	51.7	11,688.3
Maple-beech-birch	525.9	200.3	60.9	9.9	--	797.0
Total	14,598.2	8,257.9	3,480.6	1,154.6	131.5	27,622.8
All types	21,253.5	21,970.2	5,775.4	1,718.2	213.2	50,930.5
Percent	41.7	43.1	11.4	3.4	0.4	100.0

^{1/} Log scale, International 1/4-inch rule.

Table 8.--Net volume of sawtimber by species group, log grade, and tree-size class

PINE						
Log grade	10 - 14 inches ^{1/}		16+ inches		All trees	
	<u>Million</u> <u>bd.-ft.</u>	<u>Percent</u>	<u>Million</u> <u>bd.-ft.</u>	<u>Percent</u>	<u>Million</u> <u>bd.-ft.</u>	<u>Percent</u>
Grade 1	570.8	3.5	1,229.2	17.3	1,800.0	7.7
Grade 2	4,724.6	29.0	2,138.1	30.2	6,862.7	29.4
Grade 3	8,121.0	49.8	2,452.7	34.6	10,573.7	45.2
Grade 4	2,883.9	17.7	1,265.8	17.9	4,149.7	17.7
Total	16,300.3	100.0	7,085.8	100.0	23,386.1	100.0

OTHER SOFTWOODS						
Grade 1	22.6	1.9	244.4	13.3	267.0	8.9
Grade 2	450.5	38.6	802.0	43.7	1,252.5	41.7
Grade 3	561.2	48.1	470.9	25.6	1,032.1	34.3
Grade 4	133.1	11.4	320.4	17.4	453.5	15.1
Total	1,167.4	100.0	1,837.7	100.0	3,005.1	100.0

SOFT HARDWOODS						
Grade 1	49.6	0.9	1,632.7	24.5	1,682.3	13.7
Grade 2	952.1	17.0	1,701.2	25.5	2,653.3	21.6
Grade 3	2,593.1	46.2	1,696.7	25.5	4,289.8	35.0
Grade 4	2,017.0	35.9	1,632.9	24.5	3,649.9	29.7
Total	5,611.8	100.0	6,663.5	100.0	12,275.3	100.0

HARD HARDWOODS						
Grade 1	6.0	0.1	1,266.2	17.8	1,272.2	10.4
Grade 2	339.3	6.6	1,738.8	24.4	2,078.1	16.9
Grade 3	1,079.0	21.0	1,516.3	21.3	2,595.3	21.2
Grade 4	3,717.9	72.3	2,600.5	36.5	6,318.4	51.5
Total	5,142.2	100.0	7,121.8	100.0	12,264.0	100.0

^{1/} Ten-inch hardwoods are not included since they are below saw-timber size.

Table 9.--Net volume^{1/} of all timber by species and stand-size class

(In thousand cords)

GROWING STOCK						
Species	Large sawtimber stands	Small sawtimber stands	Pole- timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwoods:						
Longleaf pine	294	1,258	2,040	354	88	4,034
Loblolly pine	12,222	25,228	9,594	2,092	105	49,241
Shortleaf pine	1,735	16,312	7,454	522	17	26,040
Pond pine	1,128	5,883	2,881	1,163	136	11,191
Virginia pine	336	3,563	3,206	15	8	7,128
Total	15,715	52,244	25,175	4,146	354	97,634
White pine	823	818	403	76	22	2,142
Hemlock	927	78	65	85	--	1,155
Spruce & balsam fir	255	6	35	13	15	324
Cypress	1,800	1,050	378	97	18	3,343
Redcedar	72	176	240	34	1	523
Whitecedar	158	332	251	6	--	747
Total sftwds.	19,750	54,704	26,547	4,457	410	105,868
Hardwoods:						
Blackgum	8,600	7,244	2,567	647	90	19,148
Sweetgum	5,859	5,088	2,958	452	7	14,364
Yellow-poplar	4,514	3,920	2,971	335	10	11,750
Cottonwood	44	30	8	3	--	85
Soft maple	2,487	2,426	1,742	204	62	6,921
Basswood	564	360	205	37	--	1,166
Other soft hwdws.	1,584	752	871	106	22	3,335
Total	23,652	19,820	11,322	1,784	191	56,769
White & swamp chestnut oaks	4,176	4,462	3,543	232	16	12,429
Other white oaks	2,891	2,665	2,796	238	52	8,642
No. red & swamp red oaks	2,488	1,323	1,394	115	23	5,343
Other red oaks	4,781	5,203	4,772	435	44	15,235
Hickory	2,800	2,498	1,985	212	54	7,549
Ash	1,599	752	521	12	--	2,884
Beech	798	308	396	17	--	1,519
Sugar maple	131	137	129	10	--	407
Yellow birch	102	42	16	18	--	178
Black walnut	136	64	95	8	10	313
Dogwood, holly, & persimmon	337	316	418	19	3	1,093
Other hard hwdws.	1,534	963	1,335	152	19	4,003
Total	21,773	18,733	17,400	1,468	221	59,595
Total hwdws.	45,425	38,553	28,722	3,252	412	116,364
All species	65,175	93,257	55,269	7,709	822	222,232
Percent	29.3	41.9	24.9	3.5	0.4	100.0

OTHER MATERIAL

Sound culls:						
Softwoods	674	1,566	2,859	1,221	198	6,518
Hardwoods	8,446	7,674	9,163	2,850	978	29,111
Rotten culls	1,934	1,512	1,741	578	97	5,862
Hardwood limbs	4,609	2,000	1,275	455	82	8,421
Total other material	15,663	12,752	15,038	5,104	1,355	49,912

^{1/} Sound wood and bark.

Table 10.--Net volume^{1/} of all timber by species and diameter class

(In thousand cords)

Species	Diameter class						All diameter:
	6 inches	8 inches	10 inches	12 inches	14-18 inches	20+ inches	
Softwoods:							
Longleaf pine	758	986	814	609	708	159	4,034
Loblolly pine	4,803	7,510	8,382	9,110	15,540	3,896	49,241
Shortleaf pine	5,809	7,068	5,580	4,138	3,096	349	26,040
Pond pine	1,194	2,307	2,547	2,224	2,752	167	11,191
Virginia pine	2,037	2,153	1,324	879	706	29	7,128
Total	14,601	20,024	18,647	16,960	22,802	4,600	97,634
White pine	322	237	355	280	522	426	2,142
Hemlock	55	47	47	73	232	701	1,155
Spruce & balsam fir	23	22	21	51	128	79	324
Cypress	98	286	370	549	1,431	609	3,343
Redcedar	277	107	58	44	37	--	523
Whitecedar	177	229	104	103	103	31	747
Total sftwds.	15,553	20,952	19,602	18,060	25,255	6,446	105,868
Hardwoods:							
Blackgum	1,419	2,436	2,971	3,121	7,204	1,997	19,148
Sweetgum	1,803	1,980	2,030	2,162	4,822	1,567	14,364
Yellow-poplar	1,617	1,722	1,802	1,796	3,542	1,271	11,750
Cottonwood	8	7	13	13	28	16	85
Soft maple	1,132	1,321	1,463	864	1,674	467	6,921
Basswood	137	209	255	123	334	108	1,166
Other soft hwdws.	510	525	496	368	929	507	3,335
Total	6,626	8,200	9,030	8,447	18,533	5,933	56,769
White & swamp chestnut oaks	1,359	1,893	2,091	1,888	3,496	1,702	12,429
Other white oaks	1,000	1,722	1,346	1,265	2,089	1,220	8,642
No. red & swamp red oaks	439	717	704	627	1,582	1,274	5,343
Other red oaks	1,703	2,330	2,707	2,160	4,220	2,115	15,235
Hickory	766	1,033	1,127	1,317	2,309	997	7,549
Ash	298	601	416	471	831	267	2,884
Beech	165	248	222	210	403	271	1,519
Sugar maple	66	65	103	51	106	16	407
Yellow birch	24	18	15	25	52	44	178
Black walnut	22	47	81	33	122	8	313
Dogwood, holly, & persimmon	596	260	88	78	71	--	1,093
Other hard hwdws.	789	785	630	551	838	410	4,003
Total	7,227	9,719	9,530	8,676	16,119	8,324	59,595
Total hwdws.	13,853	17,919	18,560	17,123	34,652	14,257	116,364
All species	29,406	38,871	38,162	35,183	59,907	20,703	222,232
Percent	13.2	17.5	17.2	15.8	27.0	9.3	100.0

OTHER MATERIAL

Sound culls:							
Softwoods	1,471	1,572	1,273	845	954	403	6,518
Hardwoods	5,451	4,986	4,371	3,123	6,403	4,777	29,111
Rotten culls	392	574	533	466	1,442	2,455	5,862
Hardwood limbs	--	--	--	968	4,046	3,407	8,421
Total other material	7,314	7,132	6,177	5,402	12,845	11,042	49,912

^{1/} Sound wood and bark.

Table 11.--Net volume^{1/} of all timber by species and class of material

(In thousand cords)

Species	Growing stock				Other material	
	Sawtimber trees		Pole-timber trees	Total sound trees	Sound culls ^{2/}	Rotten culls
	Saw-log portion	Upper stems				
Softwoods:						
Longleaf pine	1,873	417	1,744	4,034	94	20
Loblolly pine	29,163	7,765	12,313	49,241	984	31
Shortleaf pine	10,919	2,244	12,877	26,040	1,363	14
Pond pine	6,008	1,682	3,501	11,191	955	56
Virginia pine	2,301	637	4,190	7,128	2,326	14
Total	50,264	12,745	34,625	97,634	5,722	135
White pine	1,338	245	559	2,142	235	20
Hemlock	876	177	102	1,155	213	1
Spruce & balsam fir	212	67	45	324	39	4
Cypress	2,322	637	384	3,343	191	177
Redcedar	120	19	384	523	72	2
Whitecedar	303	38	406	747	46	7
Total sftwds.	55,435	13,928	36,505	105,868	6,518	346
Hardwoods:						
Blackgum	9,630	2,692	6,826	19,148	5,852	1,596
Sweetgum	6,641	1,910	5,813	14,364	2,644	320
Yellow-poplar	5,193	1,416	5,141	11,750	954	185
Cottonwood	41	16	28	85	8	1
Soft maple	2,165	840	3,916	6,921	4,719	1,012
Basswood	447	118	601	1,166	235	56
Other soft hdwds.	1,334	470	1,531	3,335	1,576	228
Total	25,451	7,462	23,856	56,769	15,988	3,398
White & swamp chestnut oaks	5,268	1,818	5,343	12,429	2,569	348
Other white oaks	3,410	1,164	4,068	8,642	3,889	532
No. red & swamp red oaks	2,725	758	1,860	5,343	1,487	194
Other red oaks	6,438	2,057	6,740	15,235	4,070	764
Hickory	3,538	1,085	2,926	7,549	1,267	235
Ash	1,193	376	1,315	2,884	841	104
Beech	653	231	635	1,519	858	162
Sugar maple	130	43	234	407	274	38
Yellow birch	95	26	57	178	123	52
Black walnut	122	41	150	313	118	4
Dogwood, holly, & persimmon	98	51	944	1,093	655	103
Scrub oak ^{3/}	--	--	--	--	2,219	77
Other hard hdwds.	1,328	471	2,204	4,003	2,293	386
Total	24,998	8,121	26,476	59,595	20,663	2,999
Total hdwds.	50,449	15,583	50,332	116,364	36,651	6,397
All species	105,884	29,511	86,837	222,232	43,169	6,743
Percent	47.6	13.3	39.1	100.0	86.5	13.5

^{1/} Sound wood and bark.^{2/} Includes limb volume of hardwood sawtimber trees.^{3/} Includes noncommercial species.

Table 12.--Net volume^{1/} of all timber by forest type and stand-size class

(In thousand cords)

GROWING STOCK						
Forest type	Large sawtimber stands	Small sawtimber stands	Pole- timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwood types:						
Longleaf pine	168	1,099	2,059	199	49	3,574
Loblolly pine	13,383	26,861	9,749	1,074	54	51,121
Shortleaf pine	1,644	17,140	6,254	218	6	25,262
Pond pine	1,087	5,761	2,770	935	147	10,700
Virginia pine	68	3,927	3,399	220	16	7,630
White pine	1,317	795	417	7	18	2,554
Spruce-fir	257	--	34	--	15	306
Total	17,924	55,583	24,682	2,653	305	101,147
Hardwood types:						
Oak-pine	4,627	7,085	5,798	1,360	11	18,881
Oak-hickory:						
Upland hwdws.	18,871	15,316	16,910	1,513	199	52,809
Scrub oak	--	--	--	124	100	224
Oak-gum-cypress	22,253	14,362	7,191	2,034	207	46,047
Maple-beech-birch	1,500	911	688	25	--	3,124
Total	47,251	37,674	30,587	5,056	517	121,085
All types	65,175	93,257	55,269	7,709	822	222,232
Percent	29.3	41.9	24.9	3.5	0.4	100.0
OTHER MATERIAL						
Softwood types:						
Longleaf pine	28	27	103	61	17	236
Loblolly pine	1,112	1,785	1,026	217	5	4,145
Shortleaf pine	173	1,027	1,136	285	12	2,633
Pond pine	104	301	266	347	83	1,101
Virginia pine	15	535	1,334	384	74	2,342
White pine	378	137	139	53	--	707
Spruce-fir	10	--	34	--	15	59
Total	1,820	3,812	4,038	1,347	206	11,223
Hardwood types:						
Oak-pine	955	1,342	1,596	667	49	4,609
Oak-hickory:						
Upland hwdws.	5,169	3,472	6,038	1,608	712	16,999
Scrub oak	--	--	--	92	82	174
Oak-gum-cypress	7,140	3,950	3,137	1,358	306	15,891
Maple-beech-birch	579	176	229	32	--	1,016
Total	13,843	8,940	11,000	3,757	1,149	38,689
All types	15,663	12,752	15,038	5,104	1,355	49,912
Percent	31.4	25.6	30.1	10.2	2.7	100.0

^{1/} Sound wood and bark.

Table 13.--Net volume^{1/} of all timber by species and diameter class

(In million cubic feet)

GROWING STOCK							
Species	Diameter class						All diameters
	6 inches	8 inches	10 inches	12 inches	14-18 inches	20+ inches	
Softwoods:							
Longleaf pine	44.2	67.0	59.3	46.2	56.1	13.7	286.5
Loblolly pine	279.9	503.3	605.5	672.7	1,251.1	331.3	3,643.8
Shortleaf pine	332.8	476.2	421.7	311.2	244.8	29.6	1,816.3
Pond pine	71.3	155.1	172.3	172.3	218.0	14.2	803.2
Virginia pine	119.8	144.0	97.3	65.9	56.9	2.5	486.4
Total	848.0	1,345.6	1,356.1	1,268.3	1,826.9	391.3	7,036.2
White pine	21.4	17.8	27.6	23.9	45.9	40.3	176.9
Hemlock	3.6	3.5	3.8	6.1	20.8	67.6	105.4
Spruce & balsam fir	1.4	1.7	1.6	4.0	11.4	7.6	27.7
Cypress	6.7	21.2	28.6	45.6	128.4	58.2	288.7
Redcedar	17.7	8.1	4.9	3.8	3.4	--	37.9
Whitecedar	12.1	17.0	9.1	9.1	9.8	2.8	59.9
Total sftwds.	910.9	1,414.9	1,431.7	1,360.8	2,046.6	567.8	7,732.7
Hardwoods:							
Blackgum	81.5	160.4	213.8	238.9	564.9	165.9	1,425.4
Sweetgum	101.3	129.9	146.3	163.2	380.9	129.7	1,051.3
Yellow-poplar	93.6	113.8	136.7	135.2	281.3	104.4	865.0
Cottonwood	0.4	0.5	0.9	0.9	2.3	1.3	6.3
Soft maple	65.4	86.6	105.5	67.0	133.6	38.6	496.7
Basswood	7.8	13.7	18.3	9.2	26.4	9.0	84.4
Other soft hdwds.	29.1	34.1	35.7	28.6	74.6	42.1	244.2
Total	379.1	539.0	657.2	643.0	1,464.0	491.0	4,173.3
White & swamp chestnut oaks	76.6	124.3	149.5	142.2	277.1	139.9	909.6
Other white oaks	55.6	111.9	96.8	94.0	165.4	100.1	623.8
No. red & swamp red oaks	24.4	46.3	50.0	48.6	125.6	105.6	400.5
Other red oaks	94.8	153.4	193.8	161.4	336.2	174.5	1,114.1
Hickory	44.0	67.5	80.7	99.7	184.3	81.6	557.8
Ash	17.2	39.5	30.2	35.5	66.3	22.0	210.7
Beech	9.7	16.0	16.1	16.2	31.9	22.3	112.2
Sugar maple	3.7	4.1	7.4	3.7	8.5	1.4	28.8
Yellow birch	1.5	1.0	1.0	1.7	4.2	3.6	13.0
Black walnut	1.2	3.1	5.8	2.6	9.3	0.7	22.7
Dogwood, holly, & persimmon	34.1	17.1	6.3	6.1	5.6	--	69.2
Other hard hdwds.	46.1	50.3	45.2	41.5	66.8	33.9	283.8
Total	408.9	634.5	682.8	653.2	1,281.2	685.6	4,346.2
Total hdwds.	788.0	1,173.5	1,340.0	1,296.2	2,745.2	1,176.6	8,519.5
All species	1,698.9	2,588.4	2,771.7	2,657.0	4,791.8	1,744.4	16,252.2
Percent	10.5	15.9	17.1	16.3	29.5	10.7	100.0

OTHER MATERIAL

Sound culls:							
Softwoods	86.9	106.7	96.1	65.6	77.9	36.7	469.9
Hardwoods	310.4	329.9	314.1	233.1	506.4	396.1	2,090.0
Rotten culls	24.5	38.4	37.8	30.2	113.2	206.3	450.4
Hardwood limbs	--	--	--	66.4	309.3	282.1	657.8
Total other material	421.8	475.0	448.0	395.3	1,006.8	921.2	3,668.1

^{1/} Excluding bark.

Table 14.--Net volume^{1/} of all timber by species and class of material

(In million cubic feet)

Species	Growing stock				Other material	
	Sawtimber trees		Pole-timber trees	Total sound trees	Sound culls ^{2/}	Rotten culls
	Saw-log portion	Upper stems				
Softwoods:						
Longleaf pine	143.8	31.5	111.2	286.5	7.2	1.6
Loblolly pine	2,323.1	537.5	783.2	3,643.8	71.3	2.4
Shortleaf pine	826.8	180.5	809.0	1,816.3	97.5	1.1
Pond pine	462.0	114.8	226.4	803.2	65.9	3.9
Virginia pine	176.0	46.6	263.8	486.4	160.0	0.9
Total	3,931.7	910.9	2,193.6	7,036.2	401.9	9.9
White pine	122.0	15.7	39.2	176.9	19.9	1.9
Hemlock	80.7	17.6	7.1	105.4	19.3	0.1
Spruce & balsam fir	20.1	4.5	3.1	27.7	3.4	0.3
Cypress	209.6	51.2	27.9	288.7	16.5	17.3
Redcedar	10.2	1.9	25.8	37.9	5.5	0.1
Whitecedar	24.7	6.1	29.1	59.9	3.4	0.7
Total sftwds.	4,399.0	1,007.9	2,325.8	7,732.7	469.9	30.3
Hardwoods:						
Blackgum	757.1	212.6	455.7	1,425.4	434.4	123.8
Sweetgum	531.2	142.6	377.5	1,051.3	188.4	25.7
Yellow-poplar	416.9	104.0	344.1	865.0	71.4	14.0
Cottonwood	3.3	1.2	1.8	6.3	0.5	0.1
Soft maple	173.5	65.7	257.5	496.7	334.0	75.5
Basswood	36.1	8.5	39.8	84.4	17.6	4.8
Other soft hwdws.	107.6	37.7	98.9	244.2	111.7	17.4
Total	2,025.7	572.3	1,575.3	4,173.3	1,158.0	261.3
White & swamp chestnut oaks	421.4	137.8	350.4	909.6	191.6	28.4
Other white oaks	272.0	87.5	264.3	623.8	293.3	42.5
No. red & swamp red oaks	218.2	61.6	120.7	400.5	115.1	15.8
Other red oaks	510.1	162.0	442.0	1,114.1	307.3	60.9
Hickory	281.7	83.9	192.2	557.8	96.5	19.0
Ash	93.7	30.1	86.9	210.7	60.5	8.0
Beech	52.3	18.1	41.8	112.2	62.7	13.0
Sugar maple	10.4	3.2	15.2	28.8	20.4	3.1
Yellow birch	7.6	1.9	3.5	13.0	9.4	4.3
Black walnut	9.7	2.9	10.1	22.7	9.4	0.3
Dogwood, holly, & persimmon	8.2	3.5	57.5	69.2	41.2	6.5
Scrub oak ^{3/}	--	--	--	--	145.9	5.5
Other hard hwdws.	106.0	36.2	141.6	283.8	159.0	29.0
Total	1,991.3	628.7	1,726.2	4,346.2	1,512.3	236.3
Total hwdws.	4,017.0	1,201.0	3,301.5	8,519.5	2,670.3	497.6
All species	8,416.0	2,208.9	5,627.3	16,252.2	3,140.2	527.9
Percent	51.8	13.6	34.6	100.0	85.6	14.4

^{1/} Excluding bark.^{2/} Includes limb volume of hardwood sawtimber trees.^{3/} Includes noncommercial species.

Table 15.--Average volume^{1/} per acre of sawtimber by forest type, species group,
and stand-size class

(In board-feet)

Forest type and species group	Large sawtimber stands	Small sawtimber stands	Pole- timber stands	Other stand sizes	All stands
Longleaf pine					
Softwood	6,678	3,244	651	204	952
Hardwood	734	19	10	--	17
Loblolly pine					
Softwood	7,928	4,987	914	402	3,497
Hardwood	1,017	388	104	39	346
Shortleaf pine					
Softwood	5,090	4,249	488	193	2,229
Hardwood	1,420	513	73	13	310
Pond pine					
Softwood	5,044	4,642	937	399	1,770
Hardwood	19	34	--	12	14
Virginia pine					
Softwood	4,790	3,977	348	78	1,106
Hardwood	1,280	415	65	57	147
White pine					
Softwood	8,293	2,697	702	173	3,658
Hardwood	1,240	640	103	45	623
Oak-pine					
Softwood	2,776	1,705	461	350	965
Hardwood	3,687	2,028	438	170	1,080
Upland hwd.s.					
Softwood	190	199	61	147	132
Hardwood	4,833	2,818	786	287	1,967
Scrub oak					
Softwood	--	--	--	207	207
Hardwood	--	--	--	80	80
Oak-gum-cypress					
Softwood	1,088	904	284	270	653
Hardwood	6,257	3,855	983	344	3,001
Maple-beech-birch					
Softwood	2,904	1,671	88	231	1,480
Hardwood	3,231	1,852	754	155	1,832
All types					
Softwood	2,532	2,873	418	270	1,365
Hardwood	4,169	1,524	446	161	1,269

^{1/} Log scale, International 1/4-inch rule.

Table 16.--Average volume^{1/} per acre of all trees by forest type, species group, and stand-size class

(In standard cords)

Forest type and species group	Large sawtimber stands		Small sawtimber stands		Pole-timber stands		Other stand sizes		All stands	
	Sound ^{2/}	Cull ^{3/}	Sound	Cull	Sound	Cull	Sound	Cull	Sound	Cull
Longleaf pine										
Softwood	16.5	1.2	11.2	0.1	5.9	0.1	1.1	0.1	5.2	0.1
Hardwood	4.0	2.2	0.1	0.2	(4/)	0.2	(4/)	0.3	0.1	0.2
Loblolly pine										
Softwood	19.6	0.3	17.2	0.3	7.8	0.3	1.8	0.1	12.3	0.3
Hardwood	4.6	1.7	2.6	1.0	1.2	0.6	0.3	0.3	2.1	0.9
Shortleaf pine										
Softwood	13.6	0.3	20.1	0.5	7.3	0.9	0.9	0.9	12.2	0.7
Hardwood	7.3	1.9	3.3	0.9	1.3	0.7	0.2	0.6	2.3	0.8
Pond pine										
Softwood	13.6	1.0	16.7	0.7	7.3	0.7	1.6	0.6	7.2	0.7
Hardwood	0.9	0.3	0.2	0.1	--	(4/)	0.1	0.1	0.1	0.1
Virginia pine										
Softwood	10.4	--	18.5	1.8	7.2	3.0	0.4	1.5	7.8	2.3
Hardwood	8.2	4.1	2.3	1.0	1.3	0.3	0.5	0.4	1.3	0.5
White pine										
Softwood	15.6	2.9	7.7	0.5	6.2	0.3	0.7	1.7	8.8	1.4
Hardwood	4.6	2.9	4.6	1.7	3.1	2.8	0.1	--	3.6	2.0
Oak-pine										
Softwood	7.2	0.2	6.1	0.2	3.3	0.2	1.4	0.3	3.8	0.2
Hardwood	12.5	3.9	10.2	2.9	4.2	1.9	0.9	0.9	5.5	2.1
Upland hwdws.										
Softwood	0.7	(4/)	0.9	(4/)	0.6	0.1	0.6	0.1	0.6	0.1
Hardwood	16.2	4.6	14.0	3.3	7.4	2.7	1.3	2.3	9.5	3.2
Scrub oak										
Softwood	--	--	--	--	--	--	0.7	0.1	0.7	0.1
Hardwood	--	--	--	--	--	--	0.4	0.8	0.4	0.8
Oak-gum-cypress										
Softwood	2.5	0.2	2.9	0.2	1.3	0.1	0.9	0.1	1.9	0.1
Hardwood	21.0	7.3	17.7	5.5	8.7	4.2	1.7	1.9	12.5	4.8
Maple-beech-birch										
Softwood	6.0	0.8	6.1	0.2	1.5	--	0.6	0.5	4.1	0.4
Hardwood	11.5	6.0	9.9	2.8	8.0	3.2	0.4	0.7	8.9	3.8
All types										
Softwood	6.2	0.3	10.9	0.3	4.0	0.4	1.1	0.3	5.5	0.4
Hardwood	14.3	4.7	7.7	2.2	4.3	1.8	0.8	1.1	6.0	2.2

^{1/} Sound wood and bark.

^{2/} Sound trees.

^{3/} Cull trees.

^{4/} Less than 0.05 cord per acre.

Table 17.--Number of trees^{1/} by species group, quality class, and tree size

(In thousand trees)

Species group and quality class	Sapling-size trees	Pole-size trees	Small sawtimber trees	Large sawtimber trees	All trees
Yellow pines:					
Sound trees	1,779,490	590,887	225,554	25,709	2,621,640
Sound culls	(2/)	63,443	16,379	1,300	81,122
Rotten culls	(2/)	466	655	326	1,447
Total	1,779,490	654,796	242,588	27,335	2,704,209
Other softwoods:					
Sound trees	205,644	39,356	14,731	4,704	264,435
Sound culls	(2/)	4,702	2,058	561	7,321
Rotten culls	(2/)	211	261	455	927
Total	205,644	44,269	17,050	5,720	272,683
Soft hardwoods:					
Sound trees	1,764,266	324,158	63,605	27,129	2,179,158
Sound culls	(2/)	112,352	13,472	7,581	133,405
Rotten culls	(2/)	22,435	6,434	8,403	37,272
Total	1,764,266	458,945	83,511	43,113	2,349,835
Hard hardwoods:					
Sound trees	1,884,740	391,719	67,997	30,288	2,374,744
Sound culls	(2/)	187,436	16,916	9,404	213,756
Rotten culls	(2/)	24,230	5,451	6,421	36,102
Total	1,884,740	603,385	90,364	46,113	2,624,602
All species	5,634,140	1,761,395	433,513	122,281	7,951,329

^{1/} All trees 1.0 inch d.b.h. and larger.

^{2/} Data not collected.

Table 18.--Area^{1/} of seedling, sapling, and poorly stocked stands
by plantability class

(In thousand acres)

Forest type	No planting required	Suitable for machine planting	Hand planting required	All classes
Longleaf pine	184.9	19.1	19.2	223.2
Loblolly pine	514.4	13.7	14.2	542.3
Shortleaf pine	195.0	--	13.1	208.1
Pond pine	572.6	10.9	14.1	597.6
Virginia pine	221.3	2.7	13.7	237.7
White pine	31.1	--	--	31.1
Spruce-fir	--	--	3.5	3.5
Oak-pine	539.8	11.2	8.1	559.1
Oak-hickory:				
Upland hdwds.	782.9	13.9	73.3	870.1
Scrub oak	68.0	35.2	56.6	159.8
Maple-beech-birch	14.3	--	5.3	19.6
All types	3,124.3	106.7	221.1	3,452.1
Percent	90.5	3.1	6.4	100.0

^{1/} Excludes 203,900 acres on which planting would be impractical because of existing dense cover of brush.

Table 19.--Stocking on commercial forest area by forest type and
tree-size class

(In thousand acres)

GROWING STOCK OF ALL SIZES

Forest type	Non- stocked 0-9%	Poor stocking 10-39%	Medium stocking 40-69%	Good stocking 70-100%	Total area
Longleaf pine	25.7	233.8	183.7	229.1	672.3
Loblolly pine	21.1	294.9	517.4	2,696.1	3,529.5
Shortleaf pine	18.2	140.5	303.2	1,287.2	1,749.1
Pond pine	83.8	328.1	273.7	770.3	1,455.9
Virginia pine	41.5	143.1	214.0	437.1	835.7
White pine	4.3	34.0	62.7	104.8	205.8
Spruce-fir	3.5	3.1	--	7.6	14.2
Oak-pine	31.2	245.3	494.9	1,255.7	2,027.1
Oak-hickory:					
Upland hdwds.	143.2	929.2	1,768.6	2,367.3	5,208.3
Scrub oak	122.0	65.4	4.7	12.1	204.2
Oak-gum-cypress	98.6	522.2	710.0	1,867.9	3,198.7
Maple-beech-birch	6.0	37.4	83.1	114.1	240.6
All types	599.1	2,977.0	4,616.0	11,149.3	19,341.4
Percent	3.1	15.4	23.9	57.6	100.0

SAWTIMBER GROWING STOCK

Longleaf pine	418.5	216.1	30.4	7.3	672.3
Loblolly pine	1,035.9	1,406.9	665.8	420.9	3,529.5
Shortleaf pine	677.3	606.9	296.7	168.2	1,749.1
Pond pine	789.4	464.1	131.5	70.9	1,455.9
Virginia pine	550.3	187.8	58.2	39.4	835.7
White pine	57.0	89.9	42.9	16.0	205.8
Spruce-fir	6.7	2.4	--	5.1	14.2
Oak-pine	908.7	858.2	201.3	58.9	2,027.1
Oak-hickory:					
Upland hdwds.	2,062.2	2,448.9	623.3	73.9	5,208.3
Scrub oak	192.9	11.3	--	--	204.2
Oak-gum-cypress	1,049.5	1,266.4	573.7	309.1	3,198.7
Maple-beech-birch	62.4	120.9	44.1	13.2	240.6
All types	7,810.8	7,679.8	2,667.9	1,182.9	19,341.4
Percent	40.4	39.7	13.8	6.1	100.0

Table 20.--Net annual growth by species group and unit of measure, 1955

Species group	Sawtimber	Growing stock	
	<u>Million bd.-ft.</u>	<u>Million cu. ft.</u>	<u>Thousand cords</u>
So. yellow pines	1,682.5	421.1	6,366
Other softwoods	104.4	26.9	367
Soft hardwoods	624.2	228.4	3,421
Hard hardwoods	567.1	194.8	2,933
All species	2,978.2	871.2	13,087

Table 21.--Net annual growth percentages for each species group and unit of measure, 1955

Unit of measure	Southern yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Board-feet	7.19	3.47	5.09	4.62	5.85
Cubic feet	5.98	3.86	5.47	4.48	5.36
Standard cords	6.52	4.46	6.03	4.92	5.89

Table 22.--Average growth^{1/} per acre by forest type and stand-size class

SAWTIMBER (In board-feet)				
Forest type	Stand-size class			All stands
	Sawtimber	Poletimber	Other stands	
Longleaf pine	303	96	19	103
Loblolly pine	422	173	41	287
Shortleaf pine	321	84	14	185
Pond pine	310	139	34	140
Virginia pine	238	45	6	78
White pine	321	82	22	224
Oak-pine	267	101	49	141
Oak-hickory:				
Upland hdwds.	211	72	24	121
Scrub oak	--	--	24	24
Oak-gum-cypress	283	100	49	181
Maple-beech-birch	248	67	20	170
All types	300	100	34	169

GROWING STOCK (In standard cords)				
Longleaf pine	0.7	0.5	0.1	0.4
Loblolly pine	1.2	1.1	0.2	1.0
Shortleaf pine	1.1	0.9	0.1	0.9
Pond pine	0.9	0.7	0.1	0.5
Virginia pine	0.9	0.7	0.1	0.6
White pine	0.9	1.2	0.1	0.8
Oak-pine	0.9	0.6	0.2	0.6
Oak-hickory:				
Upland hdwds.	0.8	0.6	0.1	0.6
Scrub oak	--	--	0.1	0.1
Oak-gum-cypress	1.0	0.9	0.2	0.8
Maple-beech-birch	0.8	0.6	(2/)	0.6
All types	1.0	0.7	0.2	0.7

GROWING STOCK (In cubic feet)				
Longleaf pine	49.3	33.4	9.6	28.0
Loblolly pine	92.0	74.9	16.8	75.2
Shortleaf pine	82.4	55.7	7.2	62.3
Pond pine	63.1	44.9	10.6	34.5
Virginia pine	60.9	45.1	5.4	37.0
White pine	70.8	88.0	5.1	64.6
Oak-pine	68.7	37.8	14.9	41.5
Oak-hickory:				
Upland hdwds.	56.4	38.5	9.7	40.7
Scrub oak	--	--	5.8	5.8
Oak-gum-cypress	78.4	59.7	14.9	57.7
Maple-beech-birch	59.9	40.8	3.1	48.1
All types	73.4	49.3	11.7	50.8

^{1/} Total growth on undisturbed stands without deduction for normal mortality.

^{2/} Less than 0.05 cord per acre.

Table 23.--Average annual volume of timber cut by tree-size class and species group, 1955

SAWTIMBER (In million board-feet)

Tree-size class	Softwoods		Soft hardwoods	Hard hardwoods	All species
	Pine	Other			
Small sawtimber	932.0	36.5	66.5	108.3	1,143.3
Large sawtimber	480.7	85.8	237.5	198.6	1,002.6
All trees	1,412.7	122.3	304.0	306.9	2,145.9

GROWING STOCK (In thousand cords)

Pole trees	932	32	233	238	1,435
Small sawtimber	2,651	89	196	323	3,259
Large sawtimber	1,080	155	555	480	2,270
All trees	4,663	276	984	1,041	6,964

GROWING STOCK (In million cubic feet)

Pole trees	59.3	2.3	15.3	15.8	92.7
Small sawtimber	197.8	7.6	15.1	24.8	245.3
Large sawtimber	89.1	14.5	45.4	39.1	188.1
All trees	346.2	24.4	75.8	79.7	526.1

Table 24.--Net annual change in volume by species group, 1955

SAWTIMBER (In million board-feet)

Item	Southern yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Net volume, beginning of year	23,386.1	3,005.1	12,275.3	12,264.0	50,930.5
Total growth	1,813.4	135.7	686.6	654.8	3,290.5
Mortality	130.9	31.3	62.4	87.7	312.3
Net growth	1,682.5	104.4	624.2	567.1	2,978.2
Timber cut	1,412.7	122.3	304.0	306.9	2,145.9
Loss or gain	+269.8	-17.9	+320.2	+260.2	+832.3
Net volume, end of year	23,655.9	2,987.2	12,595.5	12,524.2	51,762.8
Percent change	+1.2	-0.6	+2.6	+2.1	+1.6

GROWING STOCK (In thousand cords)

Net volume, beginning of year	97,634	8,234	56,769	59,595	222,232
Total growth	6,969	449	3,717	3,265	14,400
Mortality	603	82	296	332	1,313
Net growth	6,366	367	3,421	2,933	13,087
Timber cut	4,663	276	984	1,041	6,964
Loss or gain	+1,703	+91	+2,437	+1,892	+6,123
Net volume, end of year	99,337	8,325	59,206	61,487	228,355
Percent change	+1.7	+1.1	+4.3	+3.2	+2.8

GROWING STOCK (In million cubic feet)

Net volume, beginning of year	7,036.2	696.5	4,173.3	4,346.2	16,252.2
Total growth	464.1	34.0	250.3	219.3	967.7
Mortality	43.0	7.1	21.9	24.5	96.5
Net growth	421.1	26.9	228.4	194.8	871.2
Timber cut	346.2	24.4	75.8	79.7	526.1
Loss or gain	+74.9	+2.5	+152.6	+115.1	+345.1
Net volume, end of year	7,111.1	699.0	4,325.9	4,461.3	16,597.3
Percent change	+1.1	+0.4	+3.7	+2.6	+2.1

Table 25.--County area by broad use class

County	Total area/ acres	Nonforest area		Forest land		
		Land	Water	Non- commercial	Commercial	
	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Percent</u>
Alamance	277.8	143.9	1.8	--	132.1	47.9
Alexander	165.7	74.9	3.4	--	87.4	53.9
Alleghany	147.2	81.7	0.5	4.0	61.0	41.6
Anson	343.0	133.3	3.2	(2/)	206.5	60.8
Ashe	273.3	132.1	--	1.3	139.9	51.2
Avery	158.1	40.4	--	1.2	116.5	73.7
Beaufort	612.5	187.6	84.5	--	340.4	64.5
Bertie	461.4	132.1	20.6	--	308.7	70.0
Bladen	570.3	138.3	10.5	4.7	416.8	74.5
Brunswick	580.5	93.2	27.4	29.6	430.3	77.8
Buncombe	414.1	107.6	1.5	26.6	278.4	67.5
Burke	330.9	75.8	7.8	0.2	247.1	76.5
Cabarrus	230.4	141.2	0.2	--	89.0	38.7
Caldwell	307.2	65.7	3.3	(2/)	238.2	78.4
Camden	197.1	47.0	45.0	--	105.1	69.1
Carteret	680.3	104.5	342.5	31.1	202.2	59.9
Caswell	278.4	107.0	0.7	--	170.7	61.5
Catawba	263.7	158.9	5.4	--	99.4	38.5
Chatham	452.5	96.8	1.2	--	354.5	78.6
Cherokee	298.9	32.4	10.8	1.9	253.8	88.1
Chowan	149.8	48.5	35.1	--	66.2	57.7
Clay	140.1	16.3	3.8	2.5	117.5	86.2
Cleveland	298.2	182.8	0.9	(2/)	114.5	38.5
Columbus	610.6	167.8	10.2	2.3	430.3	71.7
Craven	502.4	107.9	40.8	23.9	329.8	71.4
Cumberland	423.7	157.8	1.9	2.3	261.7	62.0
Currituck	300.2	72.9	128.1	1.1	98.1	57.0
Dare	797.4	50.1	550.5	38.6	158.2	64.1
Davidson	358.4	177.3	10.5	--	170.6	49.0
Davie	169.0	92.1	0.9	--	76.0	45.2
Duplin	526.7	194.1	0.6	2.5	329.5	62.6
Durham	192.0	73.5	0.8	--	117.7	61.6
Edgecombe	327.0	159.9	0.6	--	166.5	51.0
Forsyth	271.4	135.1	1.2	1.3	133.8	49.5
Franklin	316.1	127.9	0.7	--	187.5	59.4
Gaston	232.3	121.0	6.8	--	104.5	46.3
Gates	223.4	60.0	4.6	--	158.8	72.6
Graham	191.4	14.1	9.3	4.1	163.9	90.0
Granville	347.5	127.7	1.6	--	218.2	63.1
Greene	172.2	89.2	0.2	--	82.8	48.1
Guilford	417.3	237.2	3.0	0.1	177.0	42.7
Halifax	463.4	184.9	5.2	--	273.3	59.6
Harnett	388.5	164.4	2.2	--	221.9	57.4
Haywood	348.2	89.7	1.1	60.4	197.0	56.8
Henderson	244.4	67.9	0.4	(2/)	176.1	72.2
Hertford	231.0	74.0	4.4	--	152.6	67.3
Hoke	265.6	102.1	0.9	2.2	160.4	60.6
Hyde	873.0	103.9	470.6	109.8	188.7	46.9
Iredell	380.2	199.5	2.8	--	177.9	47.1
Jackson	319.3	40.7	3.5	4.5	270.6	85.7
Johnston	508.8	252.3	2.5	2.5	251.5	49.7
Jones	299.5	63.8	1.3	12.0	222.4	74.6

Table 25.--County area by broad use class (continued)

County	Total area ^{1/}	Nonforest area		Forest land		
		Land	Water	Non- commercial	Commercial	
	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Percent</u>
Lee	163.8	41.3	0.8	--	121.7	74.7
Lenoir	250.2	121.5	2.0	--	126.7	51.0
Lincoln	197.8	108.6	1.1	--	88.1	44.8
McDowell	286.1	50.8	4.7	6.8	223.8	79.5
Macon	332.8	55.5	5.9	6.4	265.0	81.1
Madison	291.8	88.8	1.1	1.5	200.4	68.9
Martin	308.5	102.2	1.6	--	204.7	66.7
Mecklenburg	351.4	181.6	6.7	0.7	162.4	47.1
Mitchell	140.8	32.9	--	5.0	102.9	73.1
Montgomery	319.4	59.9	8.1	(2/)	251.4	80.8
Moore	430.7	105.5	1.5	--	323.7	75.4
Nash	353.3	172.3	0.6	--	180.4	51.1
New Hanover	144.0	45.9	21.8	1.2	75.1	61.5
Northampton	348.2	139.8	4.3	--	204.1	59.3
Onslow	515.8	107.5	35.9	7.6	364.8	76.0
Orange	254.7	97.9	0.2	--	156.6	61.5
Pamlico	368.6	63.7	152.4	21.8	130.7	60.5
Pasquotank	185.6	60.3	39.2	--	86.1	58.8
Pender	556.2	85.9	11.5	24.0	434.8	79.8
Perquimans	207.4	64.0	41.1	--	102.3	61.5
Person	256.0	103.7	0.6	--	151.7	59.4
Pitt	419.8	199.7	0.9	--	219.2	52.3
Polk	150.4	38.4	0.7	--	111.3	74.3
Randolph	512.6	175.5	1.0	--	336.1	65.7
Richmond	309.1	104.4	5.1	--	199.6	65.7
Robeson	606.7	313.8	5.3	--	287.6	47.8
Rockingham	366.1	169.8	0.8	--	195.5	53.5
Rowan	337.3	177.6	13.9	(2/)	145.8	45.1
Rutherford	363.5	145.9	2.1	(2/)	215.5	59.6
Sampson	616.3	234.6	0.2	--	381.5	61.9
Scotland	202.9	97.8	0.2	--	104.9	51.8
Stanly	259.8	144.9	6.0	3.8	105.1	41.4
Stokes	293.8	107.5	0.5	3.9	181.9	62.0
Surry	344.3	129.9	1.2	0.9	212.3	61.9
Swain	348.2	19.6	10.4	213.2	105.0	31.1
Transylvania	242.6	21.8	0.2	1.0	219.6	90.6
Tyrrell	373.1	19.1	118.6	7.1	228.3	89.7
Union	411.5	225.1	0.4	(2/)	186.0	45.2
Vance	172.1	75.9	11.6	--	84.6	52.7
Wake	554.9	240.0	2.8	5.2	306.9	55.6
Warren	284.8	79.5	1.4	4.5	199.4	70.4
Washington	268.8	67.0	54.0	28.4	119.4	55.6
Watauga	204.8	89.7	8.2	10.9	96.0	48.8
Wayne	355.2	193.6	0.7	--	160.9	45.4
Wilkes	489.6	106.6	1.1	4.9	377.0	77.2
Wilson	238.7	121.6	0.5	--	116.6	49.0
Yadkin	214.4	100.1	1.1	--	113.2	53.1
Yancey	199.0	52.4	0.5	4.8	141.3	71.2
State total	33,735.7	11,192.2	2,467.8	734.3	19,341.4	62.0

^{1/} Gross area from Bureau of the Census, 1950.^{2/} Less than 50 acres.

Table 26.--Ownership of commercial forest land by county

County	Private		Public						
			National forest	Indian	Other Federal	State	County, city, town	Total public	
	Thousand acres	Percent	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Percent
Alamance	132.0	99.9	--	--	--	--	0.1	0.1	0.1
Alexander	87.4	100.0	--	--	--	--	(1/)	(1/)	--
Alleghany	61.0	100.0	--	--	--	--	(1/)	(1/)	--
Anson	206.3	99.9	--	--	--	0.1	0.1	0.2	0.1
Ashe	139.3	99.6	0.3	--	--	0.3	--	0.6	0.4
Avery	94.4	81.0	22.0	--	--	0.1	--	22.1	19.0
Beaufort	340.3	100.0	--	--	--	--	0.1	0.1	(1/)
Bertie	308.3	99.9	--	--	--	0.3	0.1	0.4	0.1
Bladen	385.0	92.4	--	--	2.7	29.1	--	31.8	7.6
Brunswick	416.8	96.9	--	--	13.2	0.3	--	13.5	3.1
Buncombe	248.5	89.3	29.8	--	0.1	(1/)	(1/)	29.9	10.7
Burke	190.2	77.0	47.3	--	--	3.9	5.7	56.9	23.0
Cabarrus	88.6	99.6	--	--	--	--	0.4	0.4	0.4
Caldwell	188.2	79.0	49.2	--	--	--	0.8	50.0	21.0
Camden	105.0	99.9	--	--	0.1	--	--	0.1	0.1
Carteret	162.9	80.6	38.4	--	0.9	--	--	39.3	19.4
Caswell	158.3	92.7	12.3	--	--	--	0.1	12.4	7.3
Catawba	99.2	99.8	--	--	--	(1/)	0.2	0.2	0.2
Chatham	352.8	99.5	--	--	--	1.6	0.1	1.7	0.5
Cherokee	166.3	65.5	80.7	4.7	2.1	--	(1/)	87.5	34.5
Chowan	65.8	99.4	--	--	0.3	--	0.1	0.4	0.6
Clay	57.1	48.6	57.8	--	2.6	--	--	60.4	51.4
Cleveland	114.5	100.0	--	--	--	--	(1/)	(1/)	--
Columbus	427.6	99.4	--	--	--	2.7	(1/)	2.7	0.6
Craven	285.6	86.6	37.5	--	6.5	0.1	0.1	44.2	13.4
Cumberland	232.4	88.8	--	--	29.0	(1/)	0.3	29.3	11.2
Currituck	95.9	97.8	--	--	1.3	0.8	0.1	2.2	2.2
Dare	158.2	100.0	--	--	--	--	--	--	--
Davidson	169.4	99.3	1.0	--	--	--	0.2	1.2	0.7
Davie	76.0	100.0	--	--	--	(1/)	(1/)	(1/)	--
Duplin	321.5	97.6	--	--	--	8.0	--	8.0	2.4
Durham	112.7	95.8	--	--	1.2	3.4	0.4	5.0	4.2
Edgecombe	166.2	99.8	--	--	--	0.3	(1/)	0.3	0.2
Forsyth	133.6	99.9	--	--	--	--	0.2	0.2	0.1
Franklin	187.5	100.0	--	--	--	(1/)	(1/)	(1/)	--
Gaston	104.4	99.9	--	--	--	(1/)	0.1	0.1	0.1
Gates	158.8	100.0	--	--	--	--	--	--	--
Graham	60.3	36.8	101.4	1.7	0.5	--	--	103.6	63.2
Granville	204.7	93.8	--	--	2.5	10.9	0.1	13.5	6.2
Greene	82.7	99.9	--	--	--	--	0.1	0.1	0.1
Guilford	172.4	97.4	--	--	--	0.2	4.4	4.6	2.6
Halifax	272.8	99.8	--	--	--	0.4	0.1	0.5	0.2
Harnett	221.9	100.0	--	--	--	--	--	--	--
Haywood	124.5	63.2	63.2	--	--	0.1	9.2	72.5	36.8
Henderson	156.9	89.1	18.2	--	--	0.9	0.1	19.2	10.9
Hertford	152.6	100.0	--	--	--	(1/)	--	(1/)	--
Hoke	79.1	49.3	--	--	79.8	1.5	--	81.3	50.7
Hyde	185.6	98.4	--	--	3.1	--	--	3.1	1.6
Iredell	177.7	99.9	--	--	--	(1/)	0.2	0.2	0.1
Jackson	226.2	83.6	26.7	17.4	--	0.2	0.1	44.4	16.4
Johnston	251.0	99.8	--	--	--	0.3	0.2	0.5	0.2
Jones	171.1	76.9	25.0	--	0.3	26.0	--	51.3	23.1

Table 26.--Ownership of commercial forest land by county (continued)

County	Private		Public						
			National forest	Indian	Other Federal	State	County, city, town	Total public	
	Thousand acres	Percent	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Percent
Lee	121.7	100.0	--	--	--	--	(1/)	(1/)	--
Lenoir	125.7	99.2	--	--	--	0.4	0.6	1.0	0.8
Lincoln	88.1	100.0	--	--	--	(1/)	(1/)	(1/)	--
McDowell	164.0	73.3	59.3	--	--	(1/)	0.5	59.8	26.7
Macon	124.3	46.9	140.5	--	--	0.1	0.1	140.7	53.1
Madison	154.2	76.9	46.2	--	--	(1/)	(1/)	46.2	23.1
Martin	204.5	99.9	--	--	--	--	0.2	0.2	0.1
Mecklenburg	160.7	99.0	--	--	--	0.1	1.6	1.7	1.0
Mitchell	87.5	85.0	15.4	--	--	--	--	15.4	15.0
Montgomery	217.7	86.6	33.7	--	--	--	(1/)	33.7	13.4
Moore	322.4	99.6	--	--	--	1.3	(1/)	1.3	0.4
Nash	180.3	99.9	--	--	--	(1/)	0.1	0.1	0.1
New Hanover	74.1	98.7	--	--	--	0.7	0.3	1.0	1.3
Northampton	204.1	100.0	--	--	--	(1/)	(1/)	(1/)	--
Onslow	247.5	67.8	--	--	71.0	46.0	0.3	117.3	32.2
Orange	154.9	98.9	--	--	--	1.7	--	1.7	1.1
Pamlico	130.2	99.6	--	--	0.5	--	--	0.5	0.4
Pasquotank	85.5	99.3	--	--	0.2	(1/)	0.4	0.6	0.7
Pender	384.0	88.3	--	--	--	50.8	--	50.8	11.7
Perquimans	101.5	99.2	--	--	--	(1/)	0.8	0.8	0.8
Person	151.4	99.8	--	--	--	--	0.3	0.3	0.2
Pitt	218.8	99.8	--	--	--	(1/)	0.4	0.4	0.2
Polk	110.4	99.2	--	--	--	--	0.9	0.9	0.8
Randolph	327.4	97.4	8.1	--	--	(1/)	0.6	8.7	2.6
Richmond	163.3	81.8	--	--	0.8	35.4	0.1	36.3	18.2
Robeson	287.4	99.9	--	--	--	0.1	0.1	0.2	0.1
Rockingham	195.4	99.9	--	--	--	--	0.1	0.1	0.1
Rowan	144.9	99.4	--	--	0.2	0.5	0.2	0.9	0.6
Rutherford	215.4	100.0	--	--	--	--	0.1	0.1	(1/)
Sampson	381.4	100.0	--	--	--	0.1	(1/)	0.1	(1/)
Scotland	77.4	73.8	--	--	4.3	21.2	2.0	27.5	26.2
Stanly	105.1	100.0	--	--	--	--	--	--	--
Stokes	181.9	100.0	--	--	--	--	--	--	--
Surry	211.7	99.7	--	--	--	(1/)	0.6	0.6	0.3
Swain	60.2	57.3	15.5	28.3	1.0	--	--	44.8	42.7
Transylvania	133.5	60.8	86.0	--	--	(1/)	0.1	86.1	39.2
Tyrrell	228.2	100.0	--	--	0.1	--	--	0.1	(1/)
Union	185.8	99.9	--	--	--	(1/)	0.2	0.2	0.1
Vance	78.5	92.8	--	--	5.9	(1/)	0.2	6.1	7.2
Wake	304.8	99.3	--	--	--	1.7	0.4	2.1	0.7
Warren	198.6	99.6	--	--	0.7	(1/)	0.1	0.8	0.4
Washington	119.0	99.7	--	--	--	0.4	(1/)	0.4	0.3
Watauga	95.4	99.4	0.1	--	--	0.2	0.3	0.6	0.6
Wayne	159.7	99.3	--	--	0.6	0.6	(1/)	1.2	0.7
Wilkes	377.0	100.0	--	--	--	(1/)	--	(1/)	--
Wilson	116.2	99.7	--	--	--	0.1	0.3	0.4	0.3
Yadkin	113.1	99.9	--	--	--	0.1	(1/)	0.1	0.1
Yancey	110.3	78.1	31.0	--	--	(1/)	--	31.0	21.9
State total	17,722.6	91.6	1,046.6	52.1	231.5	253.0	35.6	1,618.8	8.4

1/ Less than 50 acres, or 0.05 percent.

Table 27.--Net volume^{1/} of sawtimber by county and species group

(In million board-feet)

County	Softwoods ^{2/}	Gum, maple, and yellow- poplar ^{3/}	Oaks and other hard hardwoods	All species
Alamance	156.7	79.1	104.3	340.1
Alexander	81.1	16.1	76.6	173.8
Alleghany	41.2	20.0	58.1	119.3
Anson	348.4	118.3	46.0	512.7
Ashe	21.6	34.8	130.2	186.6
Avery	31.9	50.0	98.0	179.9
Beaufort	888.2	275.9	81.2	1,245.3
Bertie	842.3	529.7	235.9	1,607.9
Bladen	556.6	267.1	116.7	940.4
Brunswick	503.4	164.3	107.3	775.0
Buncombe	242.8	210.5	576.8	1,030.1
Burke	285.5	87.9	162.7	536.1
Cabarrus	96.4	38.1	121.3	255.8
Caldwell	376.5	82.6	236.5	695.6
Camden	195.6	165.9	7.3	368.8
Carteret	345.0	56.1	4.5	405.6
Caswell	228.5	88.7	181.6	498.8
Catawba	111.1	25.0	88.3	224.4
Chatham	470.9	221.6	255.4	947.9
Cherokee	136.4	35.1	284.8	456.3
Chowan	193.1	44.2	51.2	288.5
Clay	32.3	106.1	226.9	365.3
Cleveland	201.8	103.8	25.4	331.0
Columbus	556.7	343.9	176.4	1,077.0
Craven	645.4	251.2	77.9	974.5
Cumberland	275.8	54.9	38.1	368.8
Currituck	311.6	144.0	31.0	486.6
Dare	304.1	127.5	0.2	431.8
Davidson	175.6	114.7	204.3	494.6
Davie	50.0	36.1	56.9	143.0
Duplin	511.1	219.8	115.4	846.3
Durham	115.3	115.6	143.3	374.2
Edgecombe	359.8	213.6	78.0	651.4
Forsyth	83.3	65.8	58.2	207.3
Franklin	386.2	127.7	225.0	738.9
Gaston	127.6	43.0	37.3	207.9
Gates	490.0	191.3	70.2	751.5
Graham	148.0	74.2	255.5	477.7
Granville	394.9	186.0	122.0	702.9
Greene	288.7	106.1	29.9	424.7
Guilford	206.6	129.0	153.2	488.8
Halifax	372.7	333.2	122.4	828.3
Harnett	213.1	140.2	107.1	460.4
Haywood	36.5	72.6	221.1	330.2
Henderson	143.0	34.2	280.8	458.0
Hertford	419.2	260.4	138.0	817.6
Hoke	240.5	107.9	8.2	356.6
Hyde	466.6	209.7	34.0	710.3
Iredell	142.1	62.5	204.5	409.1
Jackson	84.7	109.5	318.7	512.9
Johnston	536.1	284.4	159.8	980.3
Jones	424.2	242.4	113.1	779.7
Lee	95.0	33.7	61.0	189.7

Table 27.--Net volume^{1/} of sawtimber by county and species group (continued)

(In million board-feet)

County	Softwoods ^{2/}	Gum, maple, and yellow- poplar ^{3/}	Oaks and other hard hardwoods	All species
Lenoir	210.2	88.0	51.3	349.5
Lincoln	65.9	13.6	51.9	131.4
McDowell	102.5	41.1	295.5	439.1
Macon	70.0	109.1	364.1	543.2
Madison	75.0	97.2	233.7	405.9
Martin	555.0	323.7	97.8	976.5
Mecklenburg	250.0	59.3	145.6	454.9
Mitchell	13.7	71.9	89.6	175.2
Montgomery	257.8	36.7	177.3	471.8
Moore	273.6	147.8	200.1	621.5
Nash	469.9	130.0	97.3	697.2
New Hanover	80.8	9.9	2.1	92.8
Northampton	389.4	262.1	154.5	806.0
Onslow	562.3	157.5	30.2	750.0
Orange	200.0	81.6	155.8	437.4
Pamlico	312.6	102.1	40.5	455.2
Pasquotank	277.1	101.8	32.3	411.2
Pender	491.1	234.7	95.6	821.4
Perquimans	228.6	141.8	79.2	449.6
Person	271.5	59.9	87.3	418.7
Pitt	562.5	289.5	71.3	923.3
Polk	81.2	16.7	47.6	145.5
Randolph	235.1	56.3	249.0	540.4
Richmond	177.7	114.5	36.9	329.1
Robeson	389.7	393.7	78.1	861.5
Rockingham	26.1	64.0	83.9	174.0
Rowan	109.7	111.1	161.0	381.8
Rutherford	127.4	26.2	156.5	310.1
Sampson	423.2	230.8	79.6	733.6
Scotland	156.5	57.7	10.0	224.2
Stanly	121.7	17.9	100.8	240.4
Stokes	134.2	51.5	128.7	314.4
Surry	188.8	41.1	87.4	317.3
Swain	26.8	46.9	104.0	177.7
Transylvania	114.6	72.5	321.9	509.0
Tyrrell	766.7	180.9	9.3	956.9
Union	135.9	44.9	61.0	241.8
Vance	118.7	36.1	30.1	184.9
Wake	548.4	266.1	203.2	1,017.7
Warren	104.2	106.1	167.9	378.2
Washington	257.9	135.2	48.1	441.2
Watauga	87.3	18.8	44.8	150.9
Wayne	403.9	68.1	44.5	516.5
Wilkes	202.5	91.9	206.4	500.8
Wilson	422.7	153.4	32.8	608.9
Yadkin	151.6	10.9	86.9	249.4
Yancey	167.5	46.7	212.1	426.3
State total	26,391.2	12,275.3	12,264.0	50,930.5

^{1/} Log scale, International 1/4-inch rule.^{2/} Includes pine and redcedar.^{3/} Includes other soft hardwoods.

Table 28.--Net volume^{1/} of sawtimber by county, broad species group, and diameter-
class group

(In million board-feet)

County	Softwoods			Hardwoods		
	9.0-14.9 inches	15.0-18.9 inches	19.0+ inches	11.0-14.9 inches	15.0-18.9 inches	19.0+ inches
Alamance	150.0	6.7	--	71.4	66.1	45.9
Alexander	78.8	2.3	--	42.3	36.9	13.5
Alleghany	13.8	13.2	14.2	33.8	26.9	17.4
Anson	212.1	65.1	71.2	85.7	54.4	24.2
Ashe	14.4	7.2	--	70.7	60.8	33.5
Avery	10.6	13.1	8.2	79.1	33.8	35.1
Beaufort	502.3	273.1	112.8	142.2	140.0	74.9
Bertie	495.5	235.9	110.9	285.9	283.6	196.1
Bladen	355.3	135.5	65.8	194.6	129.1	60.1
Brunswick	364.2	88.6	50.6	119.0	84.5	68.1
Buncombe	128.7	66.7	47.4	256.2	213.0	318.1
Burke	188.5	45.3	51.7	136.9	49.8	63.9
Cabarrus	86.5	9.9	--	67.5	46.3	45.6
Caldwell	200.1	55.1	121.3	158.9	83.7	76.5
Camden	110.2	65.7	19.7	82.6	48.3	42.3
Carteret	255.0	79.2	10.8	46.6	14.0	--
Caswell	198.3	30.2	--	114.2	94.0	62.1
Catawba	101.6	9.5	--	52.2	47.2	13.9
Chatham	378.4	34.0	58.5	260.5	89.0	127.5
Cherokee	83.8	34.8	17.8	144.1	83.6	92.2
Chowan	111.9	59.1	22.1	42.3	30.5	22.6
Clay	5.8	5.9	20.6	104.2	75.4	153.4
Cleveland	176.4	19.2	6.2	48.8	33.5	46.9
Columbus	381.7	113.6	61.4	211.6	159.7	149.0
Craven	422.9	154.0	68.5	146.4	127.3	55.4
Cumberland	225.4	39.2	11.2	53.4	25.4	14.2
Currituck	173.3	80.7	57.6	98.0	49.1	27.9
Dare	188.2	73.9	42.0	88.6	31.4	7.7
Davidson	152.8	13.6	9.2	161.9	94.4	62.7
Davie	47.4	2.6	--	51.2	31.2	10.6
Duplin	320.0	113.7	77.4	138.1	110.0	87.1
Durham	61.6	27.3	26.4	87.5	80.7	90.7
Edgecombe	213.1	103.0	43.7	89.2	118.9	83.5
Forsyth	63.0	20.3	--	49.2	37.4	37.4
Franklin	177.6	148.2	60.4	157.0	81.7	114.0
Gaston	118.7	8.9	--	45.5	17.5	17.3
Gates	307.5	127.0	55.5	109.6	80.9	71.0
Graham	32.9	6.3	108.8	109.1	122.9	97.7
Granville	285.0	65.3	44.6	130.9	66.5	110.6
Greene	135.1	82.1	71.5	37.1	33.9	65.0
Guilford	168.8	37.8	--	144.4	65.9	71.9
Halifax	271.9	64.8	36.0	152.7	145.0	157.9
Harnett	141.7	54.5	16.9	119.3	90.5	37.5
Haywood	15.0	15.7	5.8	104.7	103.2	85.8
Henderson	72.4	35.2	35.4	137.0	86.0	92.0
Hertford	282.0	78.4	58.8	161.6	126.3	110.5
Hoke	151.0	54.5	35.0	43.0	49.2	23.9
Hyde	273.2	135.7	57.7	127.5	82.5	33.7
Iredell	120.9	12.0	9.2	114.7	102.8	49.5
Jackson	5.8	35.0	43.9	206.3	129.9	92.0
Johnston	299.8	107.7	128.6	163.7	149.3	131.2
Jones	277.3	121.4	25.5	113.9	106.0	135.6

Table 28.--Net volume^{1/} of sawtimber by county, broad species group, and diameter-class group (continued)

(In million board-feet)

County	Softwoods			Hardwoods		
	9.0-14.9 inches	15.0-18.9 inches	19.0+ inches	11.0-14.9 inches	15.0-18.9 inches	19.0+ inches
Lee	81.0	7.6	6.4	50.6	26.4	17.7
Lenoir	126.9	58.9	24.4	46.2	34.5	58.6
Lincoln	56.4	9.5	--	38.8	22.8	3.9
McDowell	57.5	8.1	36.9	109.5	93.5	133.6
Macon	22.3	27.2	20.5	165.4	157.9	149.9
Madison	62.3	12.7	--	151.1	106.6	73.2
Martin	341.9	150.0	63.1	120.0	117.2	184.3
Mecklenburg	207.1	16.8	26.1	65.5	62.8	76.6
Mitchell	9.1	4.6	--	89.7	43.2	28.6
Montgomery	217.9	30.5	9.4	143.5	42.3	28.2
Moore	198.7	54.1	20.8	184.4	92.2	71.3
Nash	235.8	132.0	102.1	87.3	74.1	65.9
New Hanover	51.5	18.8	10.5	6.0	2.6	3.4
Northampton	220.4	79.0	90.0	178.5	134.7	103.4
Onslow	414.4	104.7	43.2	75.7	69.6	42.4
Orange	176.5	16.5	7.0	125.2	76.0	36.2
Pamlico	251.9	56.4	4.3	61.3	64.6	16.7
Pasquotank	123.5	125.8	27.8	70.1	31.0	33.0
Pender	372.5	75.6	43.0	124.9	108.3	97.1
Perquimans	128.3	65.7	34.6	104.3	65.3	51.4
Person	255.5	16.0	--	73.6	40.5	33.1
Pitt	333.1	145.5	83.9	137.2	140.9	82.7
Polk	61.9	14.1	5.2	43.1	16.1	5.1
Randolph	204.0	31.1	--	245.5	44.3	15.5
Richmond	168.7	9.0	--	64.8	46.2	40.4
Robeson	246.7	85.7	57.3	215.1	178.2	78.5
Rockingham	21.6	4.5	--	68.3	20.7	58.9
Rowan	92.9	10.8	6.0	116.7	82.4	73.0
Rutherford	122.8	4.6	--	104.1	56.0	22.6
Sampson	292.1	102.0	29.1	141.7	84.3	84.4
Scotland	92.8	38.3	25.4	29.7	21.0	17.0
Stanly	93.8	11.8	16.1	80.6	34.0	4.1
Stokes	103.1	23.2	7.9	65.6	56.7	57.9
Surry	120.5	48.7	19.6	64.1	29.5	34.9
Swain	26.8	--	--	63.0	47.4	40.5
Transylvania	57.3	23.8	33.5	171.5	125.4	97.5
Tyrrell	521.1	195.3	50.3	93.8	58.4	38.0
Union	135.9	--	--	49.5	49.9	6.5
Vance	106.3	7.3	5.1	38.3	17.1	10.8
Wake	341.5	162.9	44.0	198.9	140.6	129.8
Warren	84.2	20.0	--	129.3	87.7	57.0
Washington	183.5	66.0	8.4	100.7	47.8	34.8
Watauga	12.5	6.4	68.4	32.4	23.8	7.4
Wayne	263.4	105.7	34.8	48.5	36.7	27.4
Wilkes	175.0	18.7	8.8	157.7	102.7	37.9
Wilson	216.2	112.9	93.6	68.5	62.3	55.4
Yadkin	133.3	18.3	--	53.5	30.1	14.2
Yancey	37.1	43.9	86.5	107.5	112.1	39.2
State total	17,467.7	5,668.7	3,254.8	10,754.0	7,548.3	6,237.0

^{1/} Log scale, International 1/4-inch rule.

Table 29.--Net volume^{1/} of all timber by county, pulping species group, and tree-
diameter group

(In thousand cords)

County	Yellow pines		Other softwoods		Soft hardwoods		Hard hardwoods		All species
	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	
Alamance	826	51	73	3	223	140	302	200	1,818
Alexander	600	37	14	--	50	32	175	150	1,058
Alleghany	9	2	40	51	77	37	182	105	503
Anson	1,284	404	11	4	198	233	238	81	2,453
Ashe	--	--	57	26	146	63	343	274	909
Avery	--	--	37	49	282	92	486	194	1,140
Beaufort	1,599	1,169	62	126	505	584	245	172	4,462
Bertie	1,371	1,013	55	167	1,104	1,191	400	556	5,857
Bladen	1,320	647	40	59	737	489	256	245	3,793
Brunswick	1,303	438	94	114	343	328	136	215	2,971
Buncombe	520	115	67	191	501	397	1,326	1,231	4,348
Burke	963	94	163	157	325	121	730	287	2,840
Cabarrus	428	98	25	2	114	76	335	245	1,323
Caldwell	759	137	267	323	403	124	693	479	3,185
Camden	294	305	141	24	397	334	61	16	1,572
Carteret	1,200	389	30	16	150	128	30	11	1,954
Caswell	971	159	7	--	437	161	357	403	2,495
Catawba	524	68	--	--	29	50	294	163	1,128
Chatham	1,790	379	34	--	705	409	1,008	429	4,754
Cherokee	556	71	58	73	190	67	1,048	518	2,581
Chowan	281	279	7	--	161	86	74	119	1,007
Clay	14	11	11	45	117	196	518	479	1,391
Cleveland	870	165	--	--	183	212	175	57	1,662
Columbus	1,137	665	106	83	705	689	275	366	4,026
Craven	1,390	784	64	65	520	555	202	190	3,770
Cumberland	720	308	21	7	184	99	120	75	1,534
Currituck	430	401	16	61	588	252	150	65	1,963
Dare	738	257	158	76	543	219	4	--	1,995
Davidson	1,004	93	18	--	325	214	491	353	2,498
Davie	336	21	18	2	151	53	178	109	868
Duplin	1,226	591	11	41	575	462	258	230	3,394
Durham	619	137	--	3	259	240	229	294	1,781
Edgecombe	720	506	16	27	262	505	150	187	2,373
Forsyth	417	78	14	--	267	107	298	121	1,302
Franklin	958	559	8	--	326	257	431	455	2,994
Gaston	624	67	2	--	168	87	196	63	1,207
Gates	992	579	109	96	554	410	178	158	3,076
Graham	70	15	51	196	170	147	421	533	1,603
Granville	1,336	430	7	--	506	344	539	209	3,371
Greene	413	425	26	25	103	222	115	58	1,387
Guilford	778	191	14	--	326	226	507	260	2,302
Halifax	1,133	452	4	20	734	695	392	293	3,723
Harnett	627	266	3	9	239	293	247	208	1,892
Haywood	46	49	46	5	319	162	695	455	1,777
Henderson	160	67	82	108	152	56	639	561	1,825
Hertford	863	479	43	53	386	563	275	276	2,938
Hoke	506	303	11	28	190	219	32	13	1,302
Hyde	628	583	69	99	683	399	123	83	2,667
Iredell	451	119	27	4	251	122	340	403	1,717
Jackson	10	8	20	135	177	189	842	626	2,007
Johnston	1,035	761	--	--	418	600	317	322	3,453
Jones	814	466	19	90	300	493	188	226	2,596

Table 29.--Net volume^{1/} of all timber by county, pulping species group, and tree-diameter group (continued)

(In thousand cords)

County	GROWING STOCK								All species
	Yellow pines		Other softwoods		Soft hardwoods		Hard hardwoods		
	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	
Lee	594	61	1	--	124	68	206	102	1,156
Lenoir	420	258	15	25	164	183	141	107	1,313
Lincoln	446	50	1	--	138	29	200	96	960
McDowell	271	58	5	64	222	77	700	608	2,000
Macon	169	38	32	73	524	184	639	778	2,437
Madison	140	32	141	36	408	176	563	458	1,954
Martin	994	620	28	119	492	748	171	238	3,410
Mecklenburg	1,048	221	15	--	120	104	278	296	2,082
Mitchell	--	--	23	9	314	114	354	167	981
Montgomery	1,457	186	2	--	199	75	1,120	270	3,309
Moore	1,132	211	37	46	678	256	683	336	3,379
Nash	889	638	15	31	317	297	277	226	2,690
New Hanover	218	57	32	37	55	17	12	5	433
Northampton	695	354	56	176	452	576	209	369	2,887
Onslow	1,239	689	14	33	355	322	95	60	2,807
Orange	1,071	145	--	--	249	143	481	332	2,421
Pamlico	893	323	3	10	330	200	74	108	1,941
Pasquotank	262	437	129	36	314	217	42	64	1,501
Pender	1,434	394	113	84	459	469	315	190	3,458
Perquimans	298	310	28	35	357	311	212	168	1,719
Person	1,259	118	12	--	328	101	224	157	2,199
Pitt	712	745	31	70	658	617	173	163	3,169
Polk	388	63	3	--	36	30	244	76	840
Randolph	1,021	153	81	--	325	78	1,483	315	3,456
Richmond	875	95	3	--	293	240	123	74	1,703
Robeson	714	473	89	73	911	807	90	165	3,322
Rockingham	227	11	3	--	165	100	252	170	928
Rowan	626	73	28	12	239	203	385	323	1,889
Rutherford	1,051	67	--	--	117	69	759	272	2,335
Sampson	1,145	456	37	32	577	427	195	162	3,031
Scotland	312	217	19	20	130	114	14	21	847
Stanly	628	109	--	--	107	35	391	179	1,449
Stokes	505	139	--	--	264	98	609	256	1,871
Surry	851	195	17	20	101	62	304	161	1,711
Swain	110	6	21	--	64	102	212	192	707
Transylvania	132	35	72	94	260	141	762	648	2,144
Tyrrell	1,466	951	183	46	672	368	19	18	3,723
Union	896	32	8	--	132	86	369	126	1,649
Vance	552	111	--	--	110	78	116	57	1,024
Wake	1,503	692	--	--	487	527	623	419	4,251
Warren	685	76	--	--	156	202	469	364	1,952
Washington	476	347	20	22	325	240	96	106	1,632
Watauga	--	--	46	133	98	39	211	92	619
Wayne	578	594	9	--	189	124	64	91	1,649
Wilkes	894	69	162	40	809	173	1,095	369	3,611
Wilson	581	684	3	--	357	322	114	67	2,128
Yadkin	712	118	5	--	81	12	378	161	1,467
Yancey	--	--	117	260	283	76	362	440	1,538
State total	70,232	27,402	3,935	4,299	32,303	24,466	35,152	24,443	222,232

^{1/} Sound wood and bark.

Table 29.--Net volume^{1/} of all timber by county, pulping species group, and tree-diameter group (continued)

(In thousand cords)

County	Yellow pines		Other softwoods		Soft hardwoods		Hard hardwoods		All species
	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	
Alamance	19	5	--	--	44	30	30	30	158
Alexander	42	17	--	--	12	10	65	24	170
Alleghany	25	4	18	8	41	26	68	101	291
Anson	32	--	11	--	51	34	86	68	282
Ashe	46	4	14	27	36	24	241	167	559
Avery	2	--	--	3	35	27	88	165	320
Beaufort	39	3	1	8	205	210	54	97	617
Bertie	97	41	9	11	391	879	212	274	1,914
Bladen	56	18	2	13	247	285	108	95	824
Brunswick	58	23	1	28	174	161	133	110	688
Buncombe	10	--	1	1	56	49	231	322	670
Burke	61	5	10	34	57	30	106	185	488
Cabarrus	1	10	3	2	23	48	84	43	214
Caldwell	200	22	2	--	57	25	245	198	749
Camden	4	4	9	12	154	168	33	16	400
Carteret	56	--	3	4	43	13	24	15	158
Caswell	35	10	--	--	58	70	81	100	354
Catawba	60	--	--	--	16	1	47	21	145
Chatham	18	27	--	--	158	115	221	240	779
Cherokee	9	--	--	--	20	29	119	172	349
Chowan	14	2	--	--	84	109	27	65	301
Clay	--	--	--	1	11	19	50	137	218
Cleveland	22	3	--	--	57	43	75	51	251
Columbus	55	16	1	9	288	365	80	186	1,000
Craven	60	60	1	--	128	236	95	134	714
Cumberland	29	15	3	2	65	43	63	30	250
Currituck	--	18	--	--	73	137	37	27	292
Dare	82	17	5	13	147	62	36	2	364
Davidson	13	--	--	--	39	42	70	71	235
Davie	9	--	--	--	29	14	16	14	82
Duplin	37	13	--	--	101	201	155	92	599
Durham	91	4	--	--	43	66	52	86	342
Edgecombe	23	24	3	3	69	365	103	104	694
Forsyth	96	--	4	--	23	37	35	62	257
Franklin	20	--	--	--	108	42	98	76	344
Gaston	74	10	--	--	36	6	64	24	214
Gates	16	20	7	59	102	291	47	51	593
Graham	52	10	--	6	51	102	185	558	964
Granville	24	4	--	--	48	57	97	58	288
Greene	9	5	2	--	35	53	26	18	148
Guilford	8	12	--	--	64	16	48	70	218
Halifax	57	29	--	9	95	336	137	203	866
Harnett	8	10	--	--	52	87	168	78	403
Haywood	29	5	3	--	135	82	281	408	943
Henderson	76	27	9	21	33	57	310	255	788
Hertfort	12	11	12	49	79	202	105	129	599
Hoke	5	10	--	7	58	58	34	8	180
Hyde	44	10	7	9	152	121	97	25	465
Iredell	104	10	--	--	79	11	202	82	488
Jackson	43	12	--	--	76	78	444	602	1,255
Johnston	41	--	--	--	171	273	149	128	762
Jones	43	8	--	3	69	170	64	53	410

Table 29.--Net volume^{1/} of all timber by county, pulping species group, and tree-diameter group (continued)

(In thousand cords)

County	Yellow pines		Other softwoods		Soft hardwoods		Hard hardwoods		All species
	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	
Lee	6	4	--	--	16	32	31	61	150
Lenoir	6	3	--	2	21	65	63	41	201
Lincoln	22	7	--	--	16	47	60	42	194
McDowell	90	23	4	--	65	104	402	401	1,089
Macon	64	5	9	30	55	103	418	580	1,264
Madison	112	6	11	30	66	62	305	298	890
Martin	32	13	2	7	153	508	46	87	848
Mecklenburg	20	16	19	--	77	62	68	87	349
Mitchell	--	--	--	--	42	28	82	108	260
Montgomery	23	8	--	--	115	36	132	112	426
Moore	49	5	--	--	109	90	141	107	501
Nash	17	21	--	--	75	74	93	87	367
New Hanover	8	3	--	3	16	11	15	2	58
Northampton	68	5	5	3	260	216	63	168	788
Onslow	72	12	--	--	133	158	67	30	472
Orange	4	4	2	--	63	31	46	40	190
Pamlico	21	3	--	--	77	61	29	40	231
Pasquotank	--	6	3	--	114	217	27	20	387
Pender	72	13	9	16	241	175	139	100	765
Perquimans	3	6	--	--	101	58	33	66	267
Person	51	--	9	--	82	40	25	33	240
Pitt	26	19	8	--	170	248	104	176	751
Polk	142	21	1	--	45	5	134	119	467
Randolph	64	7	--	--	182	37	327	130	747
Richmond	17	--	--	--	76	91	89	34	307
Robeson	17	--	8	5	251	352	78	61	772
Rockingham	489	14	--	--	123	73	112	46	857
Rowan	22	12	5	--	60	14	71	45	229
Rutherford	50	3	--	--	90	24	142	211	520
Sampson	31	13	4	--	133	156	206	65	608
Scotland	3	--	--	--	39	30	34	5	111
Stanly	68	--	2	--	48	2	88	47	255
Stokes	34	18	--	--	51	22	149	65	339
Surry	244	28	--	--	18	33	348	76	747
Swain	22	3	--	--	16	30	78	111	260
Transylvania	56	27	--	--	73	112	402	493	1,163
Tyrrell	123	36	29	3	206	242	80	20	739
Union	--	--	13	--	47	72	131	114	377
Vance	25	5	1	--	45	72	38	22	208
Wake	59	5	2	--	59	65	133	63	386
Warren	14	--	--	--	73	144	60	44	335
Washington	11	15	7	3	175	251	36	44	542
Watauga	--	--	5	55	86	31	283	203	663
Wayne	5	23	--	--	46	75	44	43	236
Wilkes	385	38	42	--	113	16	378	222	1,194
Wilson	17	7	--	--	97	118	49	39	327
Yadkin	109	3	--	--	73	6	60	43	294
Yancey	--	--	47	120	42	60	321	295	885
State total	4,839	1,018	388	619	8,812	10,574	11,986	11,676	49,912

^{1/} Sound wood and bark.

Table 30.--Average annual volume of sawtimber cut by county and species group^{1/}

(In million board-feet)					
County	Yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Alamance	1.6	--	2.3	8.2	12.1
Alexander	9.8	--	1.2	1.6	12.6
Alleghany	0.3	1.9	0.8	2.7	5.7
Anson	14.5	--	5.9	11.2	31.6
Ashe	0.8	5.8	1.8	5.8	14.2
Avery	0.3	1.9	1.6	4.9	8.7
Beaufort	28.9	--	4.7	1.7	35.3
Bertie	52.4	1.8	13.8	1.9	69.9
Bladen	34.1	--	19.7	2.8	56.6
Brunswick	10.7	--	--	--	10.7
Buncombe	2.9	5.2	3.3	10.8	22.2
Burke	5.3	4.5	2.0	7.3	19.1
Cabarrus	6.3	--	1.3	1.8	9.4
Caldwell	4.7	9.6	1.8	7.1	23.2
Camden, Chowan & Pasquotank	4.5	1.3	5.8	3.1	14.7
Carteret	15.4	--	1.0	--	16.4
Caswell	--	--	--	0.7	0.7
Catawba	16.8	--	0.3	3.6	20.7
Chatham	19.0	0.2	--	--	19.2
Cherokee	5.4	3.5	1.6	6.1	16.6
Clay	0.5	2.2	1.0	3.4	7.1
Cleveland	9.2	--	--	1.0	10.2
Columbus	44.5	1.8	27.6	1.3	75.2
Craven	16.8	--	4.6	0.4	21.8
Cumberland	27.4	--	0.4	1.6	29.4
Currituck	8.7	0.7	--	--	9.4
Dare	3.5	0.1	--	--	3.6
Davidson	1.4	--	--	--	1.4
Davie	8.0	0.2	0.2	--	8.4
Duplin	40.5	--	7.6	--	48.1
Durham	12.1	--	2.5	1.5	16.1
Edgecombe	17.2	3.5	7.3	--	28.0
Forsyth	12.5	0.2	7.0	6.0	25.7
Franklin	33.1	--	1.1	0.5	34.7
Gaston	12.3	--	1.1	--	13.4
Gates	9.2	--	7.6	4.0	20.8
Graham	1.7	2.9	0.9	3.5	9.0
Granville	20.8	--	6.3	9.0	36.1
Greene	12.7	1.5	--	--	14.2
Guilford	7.3	--	2.5	15.4	25.2
Halifax	36.1	3.3	7.5	10.4	57.3
Harnett	16.4	--	0.2	1.5	18.1
Haywood	1.3	4.8	2.0	6.5	14.6
Henderson	2.4	4.9	1.8	6.4	15.5
Hertford	13.7	--	3.8	1.5	19.0
Hoke	10.2	0.3	0.8	--	11.3
Hyde	42.4	1.9	9.2	--	53.5
Iredell	17.2	--	2.5	10.0	29.7
Jackson	1.6	5.6	3.3	10.7	21.2
Johnston	41.6	--	0.7	1.2	43.5
Jones	5.7	--	--	--	5.7
Lee	10.7	--	--	1.0	11.7

Table 30.--Average annual volume of sawtimber cut by county and species group^{1/}

(continued)

(In million board-feet)

County	Yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Lenoir	11.4	--	1.3	--	12.7
Lincoln	6.0	0.4	--	1.9	8.3
McDowell	3.8	3.3	1.8	6.3	15.2
Macon	1.6	4.0	2.2	7.8	15.6
Madison	1.9	4.9	2.2	7.3	16.3
Martin	34.0	1.7	9.3	--	45.0
Mecklenburg	15.0	0.5	--	--	15.5
Mitchell	0.3	1.7	1.4	4.5	7.9
Montgomery	19.6	--	2.4	7.3	29.3
Moore	16.6	--	--	1.7	18.3
Nash	17.7	--	1.8	0.6	20.1
New Hanover	11.3	2.0	--	--	13.3
Northampton	14.3	0.9	1.4	6.2	22.8
Onslow	27.3	--	5.8	1.5	34.6
Orange	3.5	--	3.3	--	6.8
Pamlico	11.6	--	2.7	--	14.3
Pender	26.2	0.4	3.4	--	30.0
Perquimans	9.7	--	2.2	0.8	12.7
Person	9.2	--	2.0	0.8	12.0
Pitt	40.4	1.0	18.2	--	59.6
Polk	12.9	--	0.6	1.4	14.9
Randolph	36.9	--	2.9	5.8	45.6
Richmond	24.9	0.1	2.5	0.3	27.8
Robeson	44.5	0.6	9.9	0.5	55.5
Rockingham	16.9	--	1.1	1.9	19.9
Rowan	2.7	2.5	6.7	2.9	14.8
Rutherford	10.8	--	--	2.9	13.7
Sampson	27.9	--	2.0	1.4	31.3
Scotland	4.8	--	--	--	4.8
Stanly	1.3	--	--	0.8	2.1
Stokes	7.2	--	1.1	7.6	15.9
Surry	8.5	--	1.4	2.6	12.5
Swain	1.4	1.7	1.1	3.8	8.0
Transylvania	1.7	5.7	1.8	6.6	15.8
Tyrrell	6.1	4.0	--	--	10.1
Union	11.0	--	11.5	0.5	23.0
Vance	11.7	--	0.3	0.7	12.7
Wake	80.6	--	12.2	11.9	104.7
Warren	44.3	--	0.9	--	45.2
Washington	3.6	1.5	0.7	3.2	9.0
Watauga	0.4	3.2	1.3	4.2	9.1
Wayne	9.0	--	1.1	--	10.1
Wilkes	8.0	7.5	3.6	12.9	32.0
Wilson	12.2	--	--	0.2	12.4
Yadkin	9.2	--	--	5.0	14.2
Yancey	0.4	5.1	1.5	5.0	12.0
State total	1,412.7	122.3	304.0	306.9	2,145.9

^{1/} Estimates of timber drain by county are less accurate than inventory volumes, and use of individual county statistics should be avoided. For general use, data for a minimum of 10 counties should be combined.

Table 31.--Average annual volume of growing stock cut by county and species group^{1/}

(In thousand cords)					
County	Yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Alamance	5	2	7	21	35
Alexander	77	--	4	4	85
Alleghany	1	4	3	8	16
Anson	80	--	14	31	125
Ashe	4	11	7	17	39
Avery	2	4	6	14	26
Beaufort	83	4	16	9	112
Bertie	142	5	45	12	204
Bladen	117	--	45	8	170
Brunswick	37	--	--	--	37
Buncombe	14	10	12	32	68
Burke	25	9	7	22	63
Cabarrus	21	1	6	7	35
Caldwell	21	19	7	21	68
Camden, Chowan & Pasquotank	14	3	21	10	48
Carteret	45	--	6	1	52
Caswell	18	--	6	9	33
Catawba	68	1	6	19	94
Chatham	76	2	--	--	78
Cherokee	23	7	7	20	57
Clay	3	5	4	10	22
Cleveland	28	--	--	4	32
Columbus	123	4	62	12	201
Craven	56	--	19	4	79
Cumberland	73	--	4	6	83
Currituck	21	2	--	--	23
Dare	9	--	--	--	9
Davidson	5	--	--	--	5
Davie	31	1	2	--	34
Duplin	112	--	18	1	131
Durham	51	1	13	10	75
Edgecombe	41	8	21	--	70
Forsyth	40	--	21	30	91
Franklin	124	--	11	10	145
Gaston	50	--	5	6	61
Gates	24	--	19	11	54
Graham	7	6	5	11	29
Granville	56	1	32	31	120
Greene	27	3	--	--	30
Guilford	36	--	7	38	81
Halifax	101	6	19	28	154
Harnett	49	--	1	4	54
Haywood	7	9	8	20	44
Henderson	12	10	7	19	48
Hertford	41	3	12	7	63
Hoke	28	1	3	--	32
Hyde	120	5	25	1	151
Iredell	78	2	8	36	124
Jackson	8	11	13	32	64
Johnston	121	--	4	3	128
Jones	18	--	--	--	18
Lee	29	--	--	3	32

Table 31.--Average annual volume of growing stock cut by county and species group^{1/}

(continued)

(In thousand cords)

County	Yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Lenoir	25	--	3	--	28
Lincoln	33	1	1	5	40
McDowell	17	7	7	19	50
Macon	8	8	10	23	49
Madison	9	10	8	22	49
Martin	85	4	24	--	113
Mecklenburg	46	1	--	--	47
Mitchell	2	3	6	13	24
Montgomery	86	--	9	24	119
Moore	59	--	--	5	64
Nash	51	2	7	5	65
New Hanover	33	4	--	--	37
Northampton	41	2	3	18	64
Onslow	81	--	13	9	103
Orange	24	--	9	--	33
Pamlico	33	--	7	--	40
Pender	76	2	8	--	86
Perquimans	28	2	7	3	40
Person	54	--	7	5	66
Pitt	120	2	59	4	185
Polk	46	--	7	10	63
Randolph	120	1	18	32	171
Richmond	70	1	6	1	78
Robeson	115	1	29	3	148
Rockingham	64	1	13	13	91
Rowan	8	6	22	10	46
Rutherford	52	--	--	9	61
Sampson	92	--	7	5	104
Scotland	14	--	--	--	14
Stanly	9	--	--	4	13
Stokes	32	--	6	26	64
Surry	36	--	5	8	49
Swain	7	3	4	11	25
Transylvania	9	11	8	20	48
Tyrrell	20	9	--	--	29
Union	43	--	32	4	79
Vance	37	--	1	4	42
Wake	272	--	31	32	335
Warren	158	--	3	--	161
Washington	9	4	9	10	32
Watauga	2	6	5	12	25
Wayne	29	--	2	--	31
Wilkes	39	15	13	38	105
Wilson	32	--	--	1	33
Yadkin	33	--	1	16	50
Yancey	2	10	6	15	33
State total	4,663	276	984	1,041	6,964

^{1/} Estimates of timber drain by county are less accurate than inventory volumes, and use of individual county statistics should be avoided. For general use, data for a minimum of 10 counties should be combined.

STANDARD FOREST SURVEY TABLES

The tables which appear on the following pages have been standardized as to format and contents so that forest statistics for North Carolina can be compared or combined with similar statistics for other states. This practice is being followed to provide readers with comparable data on forest area, timber volumes, growth, and timber cut for each state as the initial surveys or resurveys are completed.

Table I.--Land area by major classes of land,
North Carolina, 1955

Class of land	Area
	<u>Thousand acres</u>
Forest:	
Commercial	19,341
Noncommercial:	
Productive-reserved	341
Unproductive	394
Total forest land	20,076
Nonforest land ^{1/}	11,346
Total, all classes	31,422

^{1/} Includes 17,400 acres of Census water created since 1950, and 136,800 acres of water in small lakes and streams defined by the Bureau of the Census as land area.

Table II.--Commercial forest land area by ownership and stand-size class,
North Carolina, 1955

(In thousand acres)

Ownership class	Total	Saw- timber stands	Pole- timber stands	Seedling & sapling stands	Nonstocked & other areas ^{1/}
Federally owned or managed:					
National forest	1,047	554	355	96	42
Indian	52	30	12	5	5
Bur. Land Mgmt.	--	--	--	--	--
Other	231	69	59	61	42
Total Federal	1,330	653	426	162	89
State	253	59	77	87	30
County & municipal	36	22	8	6	--
Private:					
Farm	13,268	5,489	4,882	2,513	384
Industrial & other	4,454	1,945	1,292	1,071	146
All ownerships	19,341	8,168	6,685	3,839	649

^{1/} Includes areas not classified elsewhere.

Table III.--Area of commercial forest land by
major forest types, North Carolina, 1955

Forest type	Thousand acres
White-red-jack pine	206
Spruce-fir	14
Longleaf-slash pine	672
Loblolly-shortleaf pine	7,570
Oak-pine	2,027
Oak-hickory	5,412
Oak-gum-cypress	3,199
Elm-ash-cottonwood	--
Maple-beech-birch	241
Aspen-birch	--
Total	19,341

Table IV.--Net volume of live sawtimber and growing stock on commercial forest land by stand-size class, North Carolina, 1955

Stand-size class	Sawtimber	Growing stock
	<u>Million bd.-ft.</u>	<u>Million cu. ft.</u>
Sawtimber stands	43,224	11,889
Poletimber stands	5,775	3,747
Seedling & sapling stands	1,718	556
Nonstocked and other areas not elsewhere classified	213	60
Total	50,930	16,252

Table V.--Net volume of live sawtimber and growing stock on commercial forest land by ownership class, North Carolina, 1955

Ownership class	Sawtimber	Growing stock
	<u>Million bd.-ft.</u>	<u>Million cu. ft.</u>
Federally owned or managed:		
National forest	3,243	938
Indian	147	37
Bureau of Land Mgmt.	--	--
Other	481	137
Total Federal	3,871	1,112
State	502	150
County & municipal	128	41
Private:		
Farm	34,107	11,225
Industrial & other	12,322	3,724
Total private	46,429	14,949
All ownerships	50,930	16,252

Table VI.--Net volume of live sawtimber and growing stock on
commercial forest land by species, North Carolina, 1955

Species	Sawtimber	Growing stock
	<u>Million bd.-ft.</u>	<u>Million cu. ft.</u>
Softwoods:		
Longleaf and slash pines	820	286
Shortleaf and loblolly pines	18,811	5,460
Other southern yellow pines	3,755	1,290
Spruce and balsam fir	133	28
White and red pines	769	177
Jack pine	--	--
Hemlock	570	105
Cypress	1,328	289
Other eastern softwoods	205	98
Total softwoods	26,391	7,733
Hardwoods:		
White & swamp chestnut oaks	2,622	909
Other white oaks	1,674	624
Northern red, swamp red, & shumard oaks	1,376	400
Other red oaks	3,134	1,114
Yellow birch	48	13
Sugar maple	64	29
Soft maple	1,016	497
Beech	312	112
Sweetgum	3,212	1,051
Tupelo and blackgum	4,520	1,426
Ash	561	211
Hickory	1,752	558
Cottonwood and aspen	20	6
Basswood	223	84
Yellow-poplar	2,624	865
Black walnut	59	23
Other eastern hardwoods	1,322	597
Total hardwoods	24,539	8,519
All species	50,930	16,252

Table VII.--Net volume of live sawtimber on commercial forest land by diameter-class group and species, North Carolina, 1955

(In million board-feet)

Species	Diameter-class groups						Total
	10-inch	12-inch	14-inch	16-inch	18-inch	20-inch and larger	
So. yellow pines	5,683	5,973	4,644	3,063	1,825	2,198	23,386
White and red pines	129	121	76	87	107	249	769
Other eastern softwoods	193	319	329	317	270	808	2,236
Total softwoods	6,005	6,413	5,049	3,467	2,202	3,255	26,391
White & swamp chestnut oaks	--	595	543	446	318	720	2,622
Other white oaks	--	381	348	224	188	533	1,674
No. red, swamp red, & shumard oaks	--	203	219	192	189	573	1,376
Other red oaks	--	654	657	503	409	911	3,134
Yellow birch	--	7	5	2	14	20	48
Sugar maple	--	16	15	11	15	7	64
Beech	--	59	37	61	44	111	312
Sweetgum	--	675	749	606	488	694	3,212
Tupelo & blackgum	--	976	1,201	877	599	867	4,520
Yellow-poplar	--	608	615	451	350	600	2,624
Other eastern hardwoods	--	1,135	1,056	845	716	1,201	4,953
Total hardwoods	--	5,309	5,445	4,218	3,330	6,237	24,539
All species	6,005	11,722	10,494	7,685	5,532	9,492	50,930

Table VIII.--Net volume of all timber on commercial forest land
by class of material and species group, North Carolina, 1955

(In million cubic feet)

Class of material	Total	Softwoods	Hardwoods
Growing stock:			
Sawtimber trees:			
Saw-log portion	8,416	4,399	4,017
Upper stem portion	2,209	1,008	1,201
Total sawtimber	10,625	5,407	5,218
Poletimber trees	5,627	2,326	3,301
Total growing stock	16,252	7,733	8,519
Other material:			
Sound cull trees	2,560	470	2,090
Rotten cull trees	450	30	420
Hardwood limbs	658	--	658
Salvable dead trees	7	4	3
Total other material	3,675	504	3,171
Total, all timber	19,927	8,237	11,690

Table IX.--Net annual growth, annual mortality, and annual cut of live saw-
timber and growing stock on commercial forest land by species
group, North Carolina, 1955

Item	Sawtimber			Growing stock		
	Total	Softwoods	Hardwoods	Total	Softwoods	Hardwoods
	<u>Million board-feet</u>			<u>Million cubic feet</u>		
Net annual growth	2,978	1,787	1,191	871	448	423
Annual mortality	312	162	150	96	50	46
Annual timber cut						
Timber products	2,099	1,518	581	467	339	128
Logging residues	47	17	30	59	32	27
Total cut	2,146	1,535	611	526	371	155

Table X.--Output of timber products and annual cut of live sawtimber and growing stock, North Carolina, 1955

Product	Output of timber products				Annual cut of sawtimber				Annual cut of growing stock				
	Volume in standard units		Roundwood volume		Total	Softwoods	Hardwoods	Total	Softwoods	Hardwoods	Total	Softwoods	Hardwoods
	Standard units	Number	Total	Softwoods									
Saw logs	M bd.-ft. ^{1/}	1,561,812	258,822	204,567	54,255	1,614,292	1,265,918	348,374	298,478	230,261	68,217		
Veneer logs and bolts	M bd.-ft. ^{1/}	143,329	22,284	3,276	19,008	157,590	21,829	135,761	30,558	4,478	26,080		
Cooperage logs and bolts	M bd.-ft. ^{1/}	2,887	488	378	110	3,316	2,478	838	617	439	178		
Pulpwood ^{2/}	Std. cords ^{3/}	1,554,681	110,848	88,000	22,848	267,148	208,837	58,311	101,778	81,880	19,898		
Fuelwood ^{2/}	Std. cords ^{4/}	2,036,298	130,905	68,872	62,033	31,373	--	31,373	68,701	40,404	28,297		
Piling	M linear ft.	2,126	1,450	1,374	76	7,737	7,347	390	1,701	1,612	89		
Poles	M pieces	169	2,096	2,096	--	11,427	11,427	--	2,419	2,419	--		
Posts	M pieces	13,273	8,720	4,403	4,317	5,795	2,976	2,819	5,442	2,748	2,694		
Hewn ties	M pieces	72	428	77	351	2,969	526	2,443	658	107	551		
Mine timbers	M cu. ft.	118	118	21	97	238	42	196	133	21	112		
Miscellaneous ^{5/}	M cu. ft. ^{6/}	13,295	13,295	5,597	7,698	44,015	13,620	30,395	15,615	6,231	9,384		
Total	--	--	549,454	378,661	170,793	2,145,900	1,535,000	610,900	526,100	370,600	155,500		

^{1/} International 1/4-inch rule.^{2/} Rough wood basis.^{3/} Not including 1,436 thousand cubic feet of wood from mill residues used for pulp and other fibre.^{4/} Not including 32,726 thousand cubic feet of wood from mill residues used for domestic and industrial fuel.^{5/} Includes excelsior bolts, handle stock, farm timbers, etc.^{6/} Not including 6 thousand cubic feet of mill residues used for miscellaneous products.

DEFINITION OF TERMS

Land-Use Classes

Forest land: Includes (a) lands which are at least 10 percent stocked with trees of any size and capable of producing sawtimber or other wood products, and (b) lands from which the trees described in (a) have been removed to less than 10-percent stocking but which have not been developed for other use; subdivided into the following classes:

Commercial: Forest land which is (a) producing, or physically capable of producing, usable crops of wood (usually sawtimber), (b) economically available now or in the future, and (c) not withdrawn from timber use.

Noncommercial: Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land, or (b) incapable of yielding usable wood products (usually sawtimber) because of adverse site conditions, or so physically inaccessible as to be unavailable economically in the foreseeable future.

Nonforest land: Includes land under cultivation or in pasture where the timber has been cleared to less than 10 percent stocking, idle or abandoned agricultural land, marsh land, and land in urban, residential, or industrial areas, school yards, cemeteries, roads, railroads, and other rights-of-way.

Water: Includes lakes, bays, and estuaries over 40 acres in size, and streams, canals, and sloughs at least one-eighth of a mile in width which are classed as "inland water" by the Bureau of the Census. Smaller lakes and ponds between one acre and 40 acres in size, and waterways between 120 feet and 660 feet in width, which are classed as land area by the Bureau of the Census, are also included as water areas.

Forest Types

Forest type is determined on the basis of cubic volume for all stand sizes except seedlings and saplings (stand size 4), in which case the number of stems are the criteria.

Yellow pine types: Forests in which 50 percent or more of the cubic volume or number of stems in the stand is shortleaf, pitch, or Virginia pine species. In mixtures the predominating species determines the type.

White pine: Forests in which 50 percent or more of the stand is eastern white pine and hemlock, either singly or in combination.

Spruce-fir: Forests in which 50 percent or more of the stand is spruce and balsam fir species.

Oak-pine type: Forests in which 50 percent or more of the stand is hardwoods, usually upland oaks, but in which southern yellow pine species make up 25 to 49 percent of the stand.

Oak-hickory type:

Upland hardwood: Forests in which 50 percent or more of the stand is composed of upland oak, hickory, yellow-poplar, maple, gum, and other hardwoods, except where pines comprise 25-49 percent of the stand.

Scrub oak: Upland forests in which 50 percent or more of the stand is composed of scrub oak species, except where pines comprise 25-49 percent of the stand.

Oak-gum-cypress type: Bottomland forests in which 50 percent or more of the stand is tupelo, blackgum, sweetgum, ash, oak, elm, or maple, in mixture with cypress and other associated species, except where pines comprise 25-49 percent of the stand.

Maple-beech-birch type: Forests in which 50 percent or more of the stand is made up of hard maple, beech, or yellow birch, singly or in combination. Commonly associated species include white pine, hemlock, basswood, buckeye, and southern red oak.

Site Quality

Site quality of pine and oak-pine types is based on the total height of pine at age 50 years. For loblolly pine and oak-loblolly pine types, an index of 60 feet or shorter is regarded as poor site, 70 fair site, and 80 and taller good site.

For other pine and oak-pine types, a site index of 50 feet or shorter is considered poor site, 60 fair site, and 70 and taller good site.

Site quality of hardwood types is based upon the number of 16-foot saw logs in hardwood trees at maturity. Sites capable of growing hardwoods with three or more saw logs are considered good sites, 2 logs fair sites, and 1 log and less poor sites.

Stand-Size Classes

Sawtimber: Stands containing at least 1,500 board-feet net volume per acre, International 1/4-inch log rule, in sound, live softwood trees 9.0 inches d.b.h. or larger, or hardwood trees 11.0 inches d.b.h. or larger. Two classes of sawtimber stands are recognized:

Large sawtimber: Stands of sawtimber having more than 50 percent of the net board-foot volume in trees 15.0 inches d.b.h. or larger.

Small sawtimber: Stands of sawtimber having 50 percent or more of the net board-foot volume in trees smaller than 15.0 inches d.b.h.

Poletimber: Stands failing to meet the minimum sawtimber specifications, but at least 10 percent stocked with trees 5.0 inches d.b.h. or larger and with at least half the minimum stocking in pole-size trees.

Seedling and saplings: Stands not qualifying as sawtimber or poletimber stands, but having at least a 10-percent stocking of trees of commercial species and with half the minimum stocking in seedlings and saplings.

Nonstocked and other areas: Forest areas not qualifying as sawtimber, poletimber, or seedling and sapling stands.

Diameters

D.b.h. (diameter at breast height): Stem diameter in inches, outside bark, measured at 4-1/2 feet above the ground.

Diameter class: All trees were tallied by 2-inch diameter classes, each class including diameters 1.0 inch below and 0.9 inch above the stated midpoint, e.g., trees 7.0 to and including 8.9 inches are included in the 8-inch class. Corresponding limits apply to other diameter classes.

Timber Quality Classification

Growing Stock

Sawtimber trees: Live softwood trees at least 9.0 inches d.b.h. and hardwood trees at least 11.0 inches d.b.h., with not less than one merchantable log 12 feet long, or with less than 50 percent of the gross volume of the tree in sound sawtimber. To be merchantable, all saw logs must be at least 8 feet long and at least 50 percent sound. They must also meet the following requirements:

Softwood logs^{2/} must have a scaling diameter of 6 inches or larger, and sweep or crook must not exceed two-thirds of the scaling diameter.

Hardwood logs must have a scaling diameter of 8 inches or larger and must pass specifications^{3/} for standard lumber logs, or tie and timber logs.

Poletimber trees: Straight-boled trees between 5.0 inches d.b.h. and sawtimber size.

Sapling-size trees: Trees 1.0 inch to 4.9 inches d.b.h. which will grow into poletimber- or sawtimber-size trees of sound quality.

Other Material

Sound cull trees: Live trees of all sizes that are unmerchantable for saw logs now or prospectively because of species, poor form, excessive limbiness, or other sound defect.

Rotten cull trees: Live trees of all sizes that are unmerchantable for saw logs now or prospectively because of rotten defect.

Hardwood limbs: The limb volume of all hardwood sawtimber and cull trees to a minimum diameter of 4.0 inches inside bark.

Species Groups

Yellow pines: Include longleaf, shortleaf, loblolly, pitch, Table-Mountain, Virginia, and pond pine.

Other softwoods: Cypress, white pine, hemlock, eastern redcedar, Atlantic whitecedar, spruce, and balsam fir.

Soft hardwoods: Blackgum, tupelo, sweetgum, yellow-poplar, cottonwood, soft maple, basswood, elm, sycamore, hackberry, buckeye, willow, cucumber, and sweetbay.

Hard hardwoods: All of the oaks, hickories, ash, beech, birch, hard maple, mulberry, black locust, black walnut, holly, dogwood, persimmon, and sourwood.

^{2/} For detailed specifications of log grades, see "Interim log grades for southern pine." Southern Forest Expt. Sta., 18 pp. 1953.

^{3/} For detailed hardwood log-grade specifications, see "Hardwood log grades for standard lumber: proposals and results." U. S. Forest Serv., Forest Products Lab., D1737. 1949.

Volume Estimates

Board-foot volume: The volume in board feet, measured by the International 1/4-inch rule, exclusive of defect, of that portion of sound sawtimber trees between the stump and the upper limit of merchantability for saw logs.

Volume in cords: For sound trees the volume in standard cords (including bark) of the sound portion of trees 5.0 inches d.b.h. and larger, between stump and a minimum top-stem diameter of 4.0 inches inside bark. Similar volumes are given for cull trees. The volume in limbs which are at least 4.0 inches in diameter inside bark is shown separately for all sawtimber-size hardwoods.

Volume in cubic feet: Same as volume shown in cords except bark is not included.

International 1/4-inch log rule: A rule for estimating the board-foot volume of 4-foot log sections, according to the formula $V = .905 (0.22D^2 - 0.71D)$. The taper allowance for computing the volume in log lengths greater than four feet is 0.5 inch per 4-foot section. Allowance for saw kerf is 1/4 inch.

Standard cord: A stacked pile, 4 x 4 x 8 feet, of round or split bolts, estimated to contain, on the average, about 74 cubic feet of solid wood.

Growth and Timber Cut

Net growth.--The estimated volume of net growth includes the growth on the present growing stock, the growth on trees which died or were cut during the year, and the ingrowth resulting from smaller trees reaching volume size. It excludes mortality, or loss of volume in trees dying from natural causes. Net growth estimates are based on growth of sound trees. Growth of "other material" is not included.

In board-feet: The change during the calendar year in sawtimber volume resulting from growth, ingrowth, and mortality losses.

In cubic feet or cords: The change during the calendar year in the volume of all sound trees 5.0 inches and larger resulting from growth, ingrowth, and mortality losses.

Timber cut.--The volume of timber cut is based on the measurement and tally of stumps found on regular ground sample plots. Stumps of all trees estimated to have been cut during the past 3-year period are recorded and the measurements are converted into equivalent tree volume. The average yearly volume of timber cut for the 3-year period is then taken as the annual estimate. Board-foot volumes include the saw-log portion of all sawtimber-size trees which were cut. Estimates in cubic feet or cords include the entire stem from stump to 4.0-inch top of all sound trees 5.0 inches in diameter and larger. Timber cut from cull or dead trees is not included.

Stocking

Stocking is the extent to which growing space is effectively utilized by trees. The number of stems present by d.b.h. classes was used as a basis for stocking classification. Areas having the minimum numbers of trees listed below, either in a single diameter class or proportionately in any combinations of diameter classes, were considered fully stocked.

<u>D.b.h.</u>	<u>Minimum number trees per acre</u>
Seedlings	1,000
2 inches	800
4 inches	590
6 inches	400
8 inches	240
10 inches	155
12 inches	115
14 inches	90

HOW THE FOREST INVENTORY IS MADE

The present system of inventory is a two-step method which includes land-use classification of points on aerial photographs followed by the cruising of ground sample plots. The county is the basic work unit. The detailed procedure is as follows:



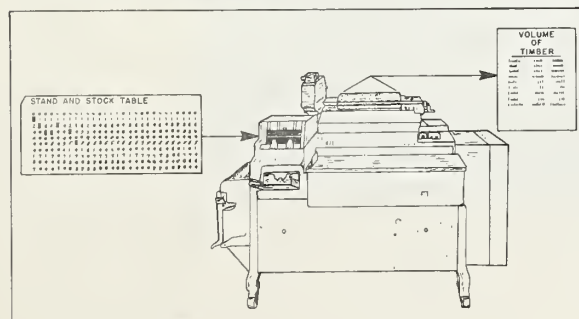
1. Preliminary estimates of the acreage of land in forests and other land-use classes are obtained by classifying points printed on every third aerial photograph in alternate flight lines within a county. The proportion of points falling in each class is used to estimate the acreage. This estimate is later checked and revised through the use of ground plots.



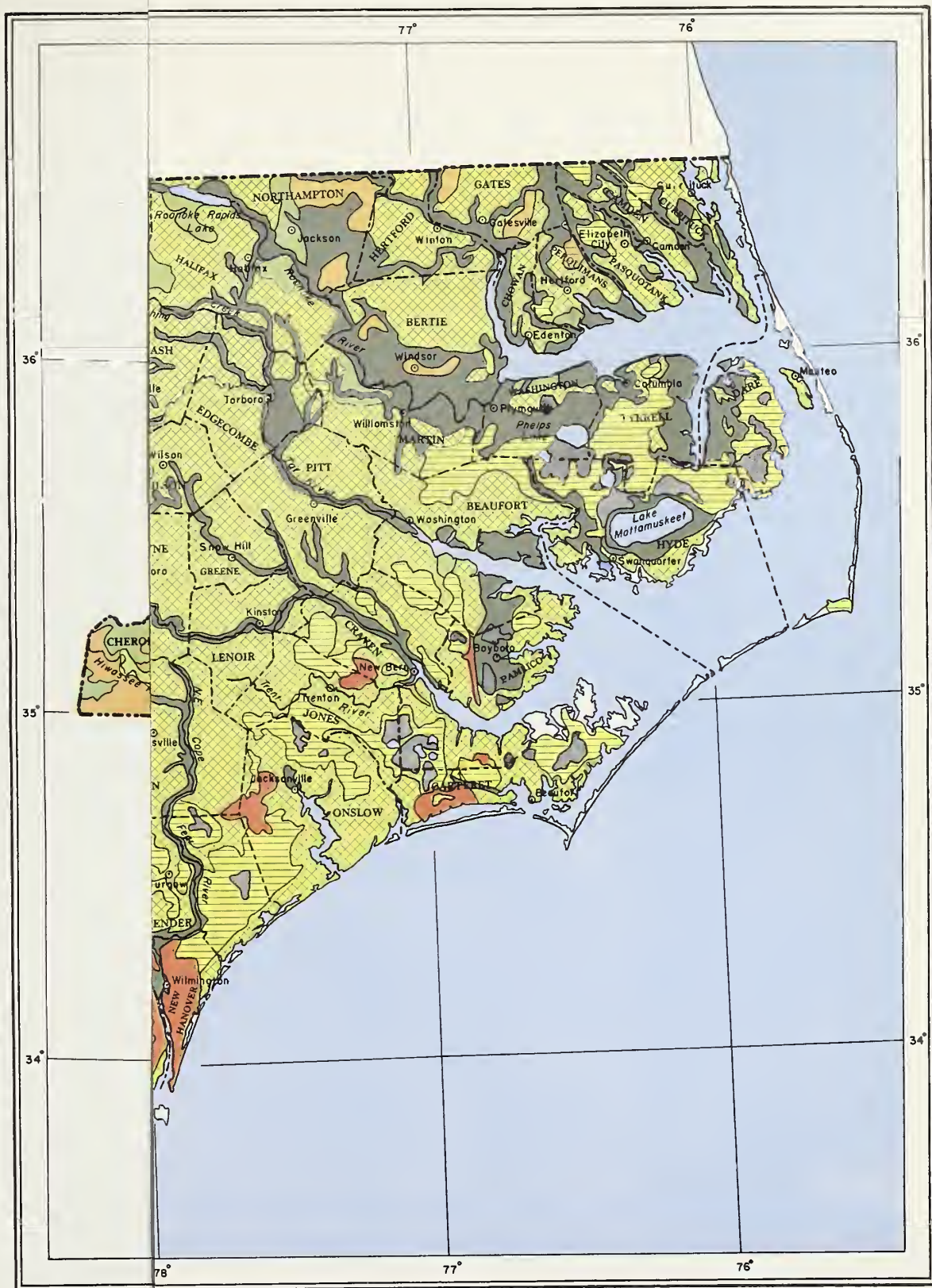
2. Ground sample plots are selected in a systematic manner from the forest land classifications made in Step 1, using an interval which will provide sufficient plots to meet established limits of error per billion cubic feet of timber. This results in a proportional sample of all existing timber stands. Timber cruisers make a detailed description and tally of the ground plots to obtain data on timber volume, quality, stocking, and mortality. Samples of agricultural and other photo classifications are also checked on the ground to verify or adjust the area estimates based on these classifications.



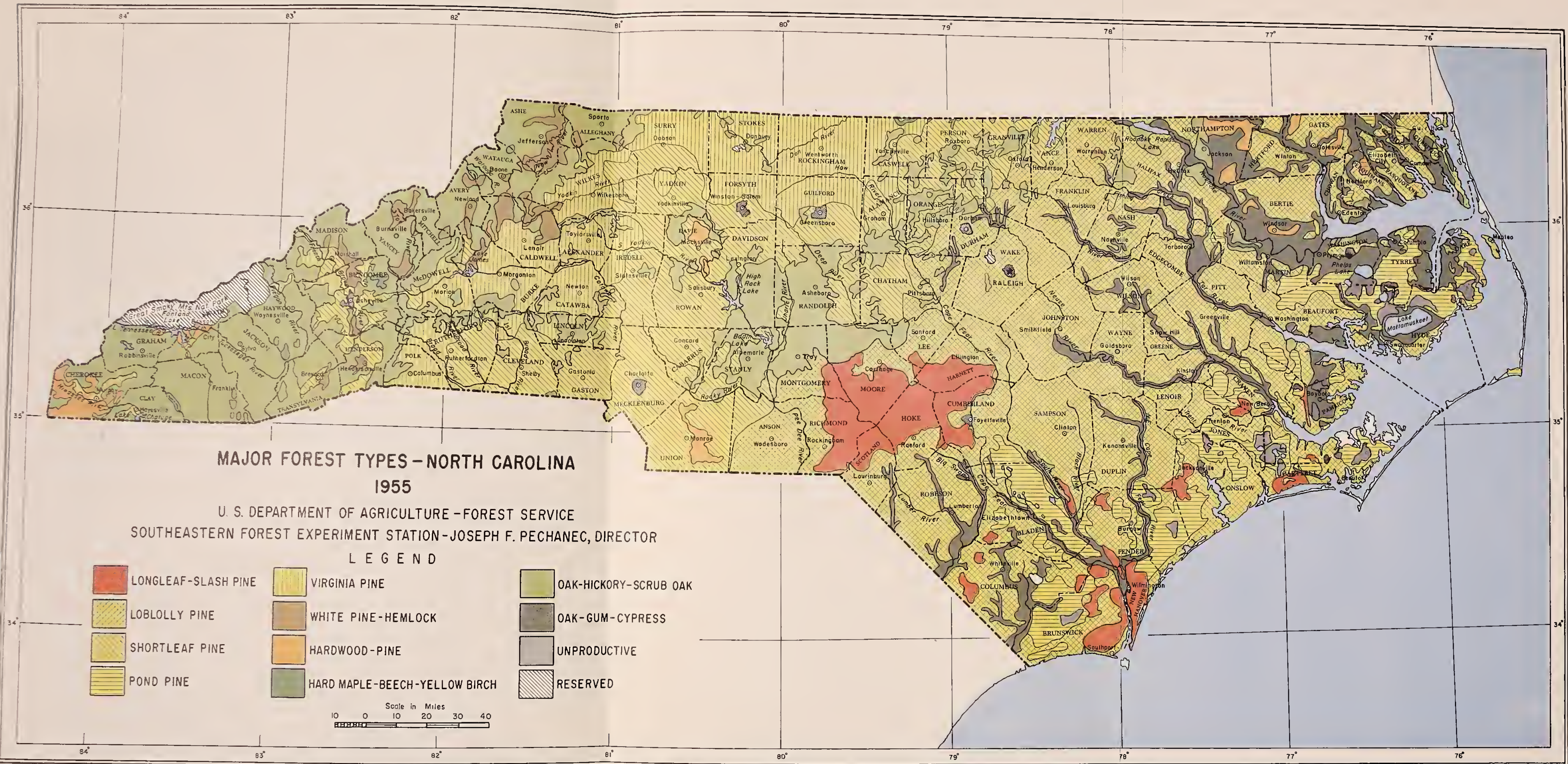
3. Growth estimates are based on increment borings taken proportionally from sample trees of various diameters and species in each forest type and stand class. The volume of timber cut is computed from a tally of the stumps of trees cut on the plots during a specified period.



4. All field data are sent to Asheville for editing and are placed on punch cards for machine sorting and tabulation. Final estimates are based on statistical summaries of the data.







Southeastern Forest Experiment Station
P. O. Box 2570, Asheville, N. C.

Forest Survey Reports Published Since 1945

Forest Statistics:

- No. 25 - Forest Resources of the Lower Coastal Plain of South Carolina
- No. 26 - 1946 Commodity Drain by County from South Carolina Forests
- No. 28 - South Carolina's Forest Resources, 1947
- No. 30 - Forest Resources of Northeast Florida, 1949
- No. 31 - Forest Resources of Central Florida, 1949
- No. 32 - Forest Resources of Northwest Florida, 1949
- No. 33 - Forest Resources of South Florida, 1949
- No. 34 - Timber Production and Commodity Drain from Florida's Forests, 1948
- No. 36 - Forest Statistics for Florida, 1949
- No. 37 - Forest Statistics for Southwest Georgia, 1951
- No. 39 - Forest Statistics for Southeast Georgia, 1952
- No. 40 - Forest Statistics for Central Georgia, 1952
- No. 41 - Forest Statistics for the Southern Coastal Plain of North Carolina, 1952
- No. 42 - Forest Statistics for North Central and North Georgia, 1953
- No. 44 - Forest Statistics for Georgia, 1951-53
- No. 45 - Forest Statistics for the Northern Coastal Plain of North Carolina, 1955 (out of print)
- No. 46 - Forest Statistics for the Mountain Region of North Carolina, 1955
- No. 48 - Forest Statistics for the Piedmont of North Carolina, 1956

Pulpwood Production:

- No. 21 - 1945 Pulpwood Production by County in the Carolinas and Virginia
- No. 23 - 1946 Pulpwood Production by County in the Southeast
- No. 27 - 1947 Pulpwood Production by County in the Southeast
- No. 29 - 1948 Pulpwood Production by County in the Southeast
- *No. 35 - 1949 Pulpwood Production in the South (out of print)
- *No. 69 - Pulpwood Production in the South, 1950
- *No. 38 - 1951 Pulpwood Production in the South
- *No. 72 - 1952 Pulpwood Production in the South
- *No. 43 - 1953 Pulpwood Production in the South
- *No. 76 - 1954 Pulpwood Production in the South
- *No. 47 - 1955 Pulpwood Production in the South

Other Reports

Southern Forests as a Source of Pulpwood. Forest Survey Release No. 22
Southern Pulpwood Production and the Timber Supply. Forest Survey Release
No. 24
Virginia Forest Resources and Industries, 1949. U. S. Dept. Agr. Misc.
Pub. No. 681
The Timber Supply Outlook in South Carolina, 1951. U. S. Dept. Agr.
Resource Report No. 3
The Timber Supply Situation in Florida, 1952. U. S. Dept. Agr. Resource
Report No. 6

*Published in cooperation with the Southern Forest Experiment Station,
New Orleans, La.

Agriculture--Asheville

